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Before the Committee on Appropriations

Department of the Interior and Related Agencies Appropriations

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MONDAY, MARCH 16, 1970.

SMITHSONIAN INSTITUTION

STATEMENT OF S. DILLON RIPLEY, SECRETARY

ACCOMPANIED BY:

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SIDNEY R. GALLER, ASSISTANT SECRETARY (SCIENCE)

CHARLES BLITZER, ASSISTANT SECRETARY (HISTORY AND
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WILLIAM W. WARNER, ACTING ASSISTANT SECRETARY (PUB-
LIC SERVICE)

THEODORE H. REED, DIRECTOR, NATIONAL ZOOLOGICAL PARK

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JOHN F. JAMESON, DIRECTOR, OFFICE OF PROGRAMMING AND
BUDGET

INTRODUCTION OF ASSOCIATES

Senator BIBLE. We will next hear the Smithsonian Institution.

Dr. RIPLEY. Mr. Chairman, I am very happy to be here this morning. If I may I would like to introduce the participants with me representing the Smithsonian.

Mr. Bradley on my right, Assistant Secretary; Dr. Sidney Galler on my left, Assistant Secretary for Science; Mr. John Jameson, next to Mr. Bradley, who is our Program and Budget Officer, and Mr. Blitzer, Assistant Secretary for History and Art.

In the rear row I am bringing for the first time before you this morning, sir, Dr. Theodore Reed, Director of the National Zoological Park; also Mr. Wheeler, our Treasurer of the Institution; and Mr. Warner, Acting Assistant Secretary for Public Service.

BUDGETARY STATEMENTS

Senator BIBLE. Thank you. There will be placed in the record at this point the general statement submitted with the budget justification together with a number of other statements furnished which contain information about your agency.

(The statements follow:)

(3349)

SMITHSONIAN INSTITUTION
GENERAL STATEMENT
FISCAL YEAR 1971

The Smithsonian Institution was created by Act of Congress in 1846, in accordance with the terms of the will of James Smithson of England, who, in 1826, bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

Since 1846, the Institution has devoted its resources to basic research, public education, and national service in science, the humanities, and the arts. Its museums, galleries, and scientific laboratories are national institutions with commitments in broad fields of scholarship and education. The Institution's physical facilities for research are extensive and its collections constitute a unique resource for research in a number of disciplines, scientific and humanistic. The research staff of over 300 professional scholars and scientists works in the fields of American history, anthropology, astronomy and astrophysics, botany, art history, entomology, the history of cultures and technology, marine and terrestrial biology, mineral sciences, and paleontology. Much of their effort is interdisciplinary, emphasizing evolutionary and behavioral themes leading to a better understanding of man and his relationship to his surroundings. Over the past century, hundreds of students, guest research scholars, collaborators, and associates in cooperation with Smithsonian staff have successfully completed significant projects, establishing a tradition for the Institution. Their work may be viewed collectively as a leading contribution to our intellectual heritage. The Smithsonian's exhibit programs and related performing art presentations attract millions of visitors from all over the world to view the artistic, cultural, and technological achievements of the country and its peoples.

The Smithsonian administers five museums, a zoological park, five art galleries, seven other research laboratories and scientific centers, a number of associated national and international programs, and several administrative and central support activities. It is responsible for the maintenance, operations, and protection of eight major exhibition buildings and nine support facilities in the Washington area, a major astrophysical observatory with headquarters in Cambridge, Massachusetts, and a worldwide data gathering network, and a facility for tropical research centered in the Panama Canal Zone.

In the decade of the 1970s, the Institution has a number of closely related program objectives:

- To study and explain areas of science and the humanities which can increase man's knowledge and understanding of his environment as well as of himself.
- To achieve integration and mutual reinforcement within our arrays of reference resources of collections, books, and information services.
- To devote an increasing measure of time and effort to studies of cultural development and technological change and to improved educational displays bearing upon this theme.

The budget increases requested for fiscal year 1971 are presented in the following three sections:

--"Salaries and Expenses": increases for carefully selected regular operating programs (museums, galleries, laboratories, and support offices); and special programs to prepare for the celebration of the Bicentennial of the American Revolution, and to make significant contributions to increase man's knowledge of the environment.

--Special Foreign Currency.

--Restoration and Construction of buildings and facilities.

"Salaries and Expenses"

The President's Budget allows the Smithsonian to seek an increase in its "Salaries and Expenses" appropriation of \$6,902,000 over a revised base of \$29,465,000 for a total of \$36,367,000. Of this increase, \$3,125,000 represent the appropriation request for the National Zoological Park. The Administration has requested the Institution to assume responsibility for the operating budget of the Zoo since it too is a national exhibition resource. The balance of the requested increase, \$3,777,000, includes \$400,000 to help meet the higher pay costs of current employees, and \$3,377,000 for program improvements. Difficult choices have been made to match this increase against the greatest needs. All but our most essential funding requirements have been deferred. No additional program funding is being requested for 15 of our operating bureaus and support activities. We have attempted to consolidate and direct our requested program increases to the following activities which we believe will result in the greatest return to the public.

Increasing Man's Knowledge and Understanding of Himself and His Environment

At the Smithsonian, we seek to study and hope to explain areas which can increase man's knowledge of his environment as well as his knowledge of himself. From this point of view of environment, the single most important need of our society today is to understand the patterns and the functioning of ecosystems. Man must learn to live in harmony with the biosphere, that small existing envelope of available land, water, and air which allows him to exist. On this understanding, man's physical and cultural future depend.

For over 100 years, Smithsonian scientists and research collaborators have studied the earth, its inhabitants, and the vast spaces that surround this planet. Ten research laboratories and program support activities are actively engaged in investigations on the complex components of this system and how they affect one another.

For fiscal year 1971, the Smithsonian is requesting additional funding in the amount of \$1,350,000 for improved basic research, documentation, and education related to environmental assessment, monitoring, and prediction.

Integration and Mutual Reinforcement of Reference Resources

The Institution possesses an array of reference resources tracing man's physical, cultural, and technological development which is unmatched anywhere in the world. Our data bank of biological specimens may turn out in a hundred years to represent four or five times the genetic diversity then available to us, for by that time 75 to 80 percent of the species of living animals or plants may be extinct. The possession of these objects and data has enabled the Institution to perform research, produce exhibits, and publish basic reference works that have set standards in many fields of the natural and physical sciences and the humanities. It must continue to fill these national responsibilities in new and challenging ways.

Five years ago, the Institution first began to explore ways of developing its information resources to make them more accessible and useful, both for the needs of today's researcher as well as his successors. While some progress has been made, much more needs to be done in assembling this reference material for useful investigations. We are purposefully seeking ways to arrange our information resources so that each reinforces the others to the maximum practical extent. Not books separate from objects; not specialized information services separate from either; but rather integrated reference systems which can unite all three.

For fiscal year 1971, the Institution is seeking an additional \$455,000 to continue this development work.

Studies and Displays of Cultural and Technological Development

In earlier times, nature was considered an enemy which had to be hacked, burned away, and pushed back in order to provide a setting for the proper development of civilization. Unfortunately, mankind never developed measures which would reveal whether or not his culture and his environment were ever competing with each other on terms of rough equality. Evidence seems to be mounting in our cities, our forests, our oceans, and our remote and barren regions that our material culture is not only dominating nature, but is in the process of overwhelming it.

As a nation, we have developed the knowledge and the capability to deal with many technological and economic priorities. Very little effort, however, has been devoted to demonstrating the delicate balance between nature and culture and the need to deal successfully with problems in these areas. Smithsonian research and exhibits will give increasing emphasis to man's survival in a rapidly changing environment. It is very important to provide to the public, especially to the younger generation, an understanding and appreciation of man's cultural background and how his artistic efforts and technological advances have contributed to the development of civilized life and what the future may hold. Preparations for the celebration of the 200th anniversary of the United States must give attention to reassessing ideals, reviewing national achievements, and placing in perspective the ethnic, cultural, and religious diversity which have consistently contributed to our country's development.

For fiscal year 1971, the Smithsonian is requesting \$1,125,000 for the preparation of new art galleries and museums, for developing experimental exhibits for greater educational impact, and for preparations for the commemoration of the Bicentennial of the American Revolution.

An additional \$447,000 are requested for administrative and central support services and for the maintenance, operation, and protection of buildings.

Special Foreign Currency Program

Provision has been made in the President's Budget for the Smithsonian to seek an increase of \$2,184,000 in its Special Foreign Currency Program for a total of \$4,500,000 in order to meet the increasing number of requests of American institutions. The need is to provide adequate support, without any dollar drain to the nation, for overseas archeological work, systematic and environmental biology, astrophysical studies, and museum programs of benefit to American institutes of higher learning. Ongoing research, based on a progressively broader authority to employ these funds, now consumes the entire appropriation. New demand, spurred by diminishing dollar funding of basic research and by greater research opportunities abroad, is intense. This program is showing important results in cultural and biological studies that are both timely and pertinent to many of the problems man is now facing.

Construction

The Smithsonian's construction requests for fiscal year 1971 consist of only the most essential improvements and additions to the physical plant of the Smithsonian.

The request for Construction and Improvements, National Zoological Park, amounts to \$200,000. This is for funds for repairs and continued maintenance to keep those buildings and exhibits which will be replaced eventually in usable condition.

Included in the request of \$1,130,000 for the Restoration and Renovation of Buildings are a number of projects to complete work in progress or to repair and make better use of existing facilities. Included in the request are: \$300,000 to complete the Renwick Gallery of Art; \$500,000 to construct second floor decks in the 90-year-old Arts and Industries Building to provide needed work space; \$25,000 for continuing emergency repairs to deteriorating buildings at the Smithsonian Tropical Research Institute; \$75,000 to construct a fumigation facility in the National Museum of Natural History; \$50,000 to modify space in the Museum of Natural History Building for use by the Libraries; \$80,000 for the preparation of plans and specifications for an off-Mall museum storage and study facility; and \$100,000 for feasibility studies.

An appropriation of the remaining \$8,897,000 is requested to liquidate the balance of the contract authority for the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden. This building will be under construction in fiscal year 1970.

With the continued support of the Congress, the Smithsonian will work energetically to improve its performance in those areas of research, education, information dissemination, and exhibits that seem of special timeliness in the new decade.

SMITHSONIAN INSTITUTION

"SALARIES AND EXPENSES"

Report on the Number of Permanent Positions by Organization Unit

<u>Unit</u>	<u>1969 Actual</u>	<u>1970 Estimate</u>	<u>1971 Estimate</u>	<u>1971 Increase over 1970</u>	<u>Increase over 1969</u>
United States National Museum	210	214	217	+ 3	
National Museum of History and Technology	154	155	155	0	
National Museum of Natural History.....	258	258	268	+ 10	
National Air and Space Museum	41	41	45	+ 4	
National Zoological Park	0	0	252	+252	
National Armed Forces Museum					
Advisory Board.....	7	7	7	0	
Anacostia Neighborhood Museum	4	8	12	+ 4	
Freer Gallery of Art.....	7	7	7	0	
National Collection of Fine Arts	56	56	60	+ 4	
National Portrait Gallery	27	27	27	0	
Joseph H. Hirshhorn Museum and Sculpture Garden	7	13	20	+ 7	
Smithsonian Astrophysical Observatory ...	54	57	57	0	
Smithsonian Tropical Research Institute...	23	38	43	+ 5	
Radiation Biology Laboratory.....	32	36	40	+ 4	
Office of Ecology	5	5	8	+ 3	
Office of Oceanography and Limnology	18	18	26	+ 8	
Center for the Study of Man.....	1	2	5	+ 3	
Center for Short-Lived Phenomenon	0	0	1	+ 1	
Office of Academic Programs.....	17	18	20	+ 2	
American Revolution Bicentennial	0	0	5	+ 5	
Environmental Sciences Program	0	0	14	+ 14	
International Activities	15	15	15	0	
Woodrow Wilson International Center for Scholars.....	0	2	0	- 2	
Administrative and Central Support Activities	237	243	267	+ 24	
Buildings Management Department.....	827	857	877	+ 20	
GRAND TOTAL.....	<u>2,000</u>	<u>2,077</u>	<u>2,448</u>	<u>371</u>	

SMITHSONIAN INSTITUTION
"Salaries and Expenses"

Report of Obligations by Objects

	1969 Actual	1970 Estimate	1971 Estimate	Increase or Decrease (-) '71 over '70
11 Personnel Compensation..	\$17,368,000	\$19,570,000	\$23,181,000	\$3,611,000
12 Personnel Benefits	1,290,000	1,471,000	1,758,000	287,000
21 Travel and Transportation of Persons	277,000	334,000	466,000	132,000
22 Transportation of Things..	218,000	198,000	250,000	52,000
23 Rent, Communications, and Utilities.....	1,596,000	1,928,000	2,423,000	495,000
24 Printing and Reproduction	515,000	597,000	724,000	127,000
25 Other Services.....	2,779,000	2,915,000	3,773,000	858,000
26 Supplies and Materials....	857,000	1,048,000	1,707,000	659,000
31 Equipment.....	1,407,000	1,446,000	2,023,000	577,000
41 Grants	8,000	58,000	62,000	4,000
42 Insurance Claims and Indemnities	1,000	0	0	0
Total Obligations	\$26,316,000	\$29,565,000	\$36,367,000	\$6,802,000
Appropriation Adjustments:				
Receipts and Reimbursements from Federal funds	-6,000	0	0	0
Unobligated balance lapsing ..	+29,000	0	0	0
Transferred to other accounts	+103,000	0	0	0
Appropriation or estimate ...	\$26,443,000	\$29565,000*	\$36,367,000	\$6,802,000

*Includes anticipated supplemental
of \$1,431,000.

SMITHSONIAN VISITORS
(By fiscal year)

Fiscal Year	Smithsonian Institution Building	Arts and Industries Building	Museum of Natural History	National Air and Space Building	Freer Gallery of Art	Museum of History and Technology	Fine Arts Gallery	Fine Arts & Portrait	Total ^{8/}
1961	1,024,526	2,912,371	2,047,973	987,858	130,746	(1)	(3)	7,103,474	
1962	1,222,112	3,471,050	2,113,053	1,986,319	130,597	(1)	(3)	8,923,131	
1963	1,630,280	3,534,182	2,288,397	2,673,618	183,359	(1)	(3)	10,309,836	
1964	1,311,061	2,457,243	2,512,306	1,854,186	168,625	2,509,774 ^{1/}	(3)	10,813,192 ^{2/}	
1965	1,065,635	2,028,175	3,051,472	1,705,683	210,972	5,091,776	(3)	13,153,713	
1966	870,010	1,746,715	2,988,006	1,494,922	22,089	4,829,112	(3)	12,150,854	
1967	1,020,312	1,638,873	3,409,957	1,484,422	212,920	5,546,102	(3)	13,312,586	
1968	847,176	1,344,622	3,257,957	1,123,698	169,533	4,750,023	30,888	11,523,897 ^{4/}	
1969	275,259 ^{5/}	1,493,141 ^{6/}	2,916,749	1,225,959	179,374	4,174,071	166,177	10,430,730 ^{7/}	

1/ Museum of History and Technology opened January 1964.
 2/ July-August 1964, certain Smithsonian Institution buildings were open 4:30 to 10 p.m. for the first time.
 3/ National Collection of Fine Arts opened May 1968.

4/ Reflects the significant decrease in visitors to the Nation's Capital in the first six months of CY 1968, due to unsettled local conditions.

5/ Building closed for renovation October 1968.

6/ Since the first display of the lunar sample in September 1969, visitors to this building have averaged approximately 270,000 per month (2,532,000 on an annual basis).

7/ Fiscal year 1969 visitor totals represent the effect of local conditions in late 1968 on visitor attendance. During CY 1969, a total of 12,438,909 visitors came to the Smithsonian, an increase of 25 percent over CY 1968.

8/ An additional 5,000,000 visitors visit the National Zoological Park annually.

SMITHSONIAN INSTITUTION

Multiyear Projections of Selected "Outputs"
By Program Category

Program Category	Actual 1969	Estimated					
		1970	1971	1972	1973	1974	1975
I. Research and Scholarship							
Cooperative Ph.D.'s completed at Smithsonian.....	55	60	70	75	80	100	115
Postdoctoral investigators.....	45	55	65	80	110	135	165
Smithsonian-University cooperative graduate fellowships	2	3	5	10	15	25	30
II. Growth of National Collections							
(Number of specimens in the Smithsonian's museums and galleries) (in millions)	670	69.0	72.0	73.0	740	760	780
III. Public Education and Enlightenment							
A. Number of visitors (Mall facilities exclusive of National Gallery of Art) (in millions)	104	14.3	16.8	17.0	180	190	195
B. Organized visitation programs							
Secondary school visits (in thousands)	112	12.0	15.0	18.5	235	315	390
Primary school visits (in thousands)	380	47.0	60.0	75.0	940	1270	1570

SMITHSONIAN INSTITUTION
 SCHEDULE OF BUILDING PROJECTS

January 1970

	FY 1964	FY 1965	FY 1966	FY 1967	FY 1968	FY 1969	FY 1970	FY 1971	FY 1972
Remodeling of Civil Service Commission Bldg. (for art galleries)	Apprn. received, \$5,465,000	Apprn. received, \$1,000,000	Under construction	April 1967 completion	May 1968 opening (NPG)	Oct. 1968 opening (NPG)			
National Air and Space Museum Building	Planning apprn. received, \$511,000	Planning apprn. received, \$1,364,000	Remainder of planning apprn. received, \$1,364,000						Request construction apprn.
Construction and Improvements, National Zoological Park 1/	Apprn. received, \$1,275,000	Apprn. received, \$1,525,000	Construction and improvements in progress	Apprn. received, \$1,539,000	Apprn. received, \$1,589,000	Apprn. received, \$400,000	Apprn. received, \$300,000	Apprn. received, \$600,000	Request apprn. for continuing program
Restoration and Renovation of Buildings				Apprn. received, \$2,248,000	Apprn. received, \$2,300,000	Apprn. received, \$1125,000	Apprn. received, \$400,000	Apprn. received, \$525,000	Request apprn. for add. renov.
Joseph H. Hirshhorn Museum and Sculpture Garden						Construction authorized	\$1,4197,000		
						Planning apprn.	\$4,197,000		
						Apprn. received, \$803,000	Apprn. received, \$2,000,000	Apprn. received, \$3,500,000	Apprn. requested, \$8,897,000

1/ First funding received in fiscal year 1963 in the amount of \$1,275,000.

SIGNIFICANT EXHIBITS, FISCAL YEAR 1969

National Museum of Natural History

"Masada"
The Indomitable Major John Wesley Powell

Jean Louis Berlandier--A French Scientist
Yorba Textiles

National Museum of History and Technology

"The Quest for the Presidency"
Inaugural Medal Display
"High School Graphics"
Edgar Dorsay Taylor drawings
Imogen Cunningham exhibit
"The Coke Push"
Cotton Gin display
"Patent Controversies in the History of Radio"

"Hail to the Chief"
Josiah K. Lilly coin collection
Raphael Soyer lithograph display
"Woman, Cameras, and Image"
"The Lingering Shadow"
"Abandoned Mine Scenes"
"Bible Quilt" display
"Human Rights Year"
"Stamps of Malta"

Anacostia Neighborhood Museum

Jazz show
Makonde sculpture

The Sage of Anacostia

Division of Performing Arts

Folklife Festival
Summer in the Parks

Puppet theatre
"Perceptions"

National Collection of Fine Arts

Alexander Archipenko
The Roy R. Neuberger Collection
"The Figurative Tradition in Recent American Art"
"European Painters Today"
Yasuo Kuniyoshi

WPA Prints
Charles Sheeler
The Graphic Art of Winslow Homer
Rico Lebrun
"The American Poster"

National Portrait Gallery

"This New Man--A Discourse in Portraits"
"Time"

A 19th Century Gallery of Distinguished Americans

Cooper-Hewitt Museum

"Early 20th Century Posters"
Paintings by Winslow Homer
Sketches by Frederic Edwin

"Counterchange and New Color"
"Contemporary Japanese Posters"
"A Treasury of Design"

National Air and Space Museum

NC-4 Transatlantic Flight display
Lunar Sample display

X-15 display
Apollo display

CONTRACTS AND GRANTS TO THE SMITHSONIAN INSTITUTION
Fiscal Years 1969 and 1970

<u>Contracts</u>	<u>1969</u>		<u>1970</u>		<u>Grants</u>	<u>1969</u>		<u>1970</u>		
	<u>1969</u>	<u>1970</u>	<u>1969</u>	<u>1970</u>		<u>1969</u>	<u>1970</u>	<u>1969</u>	<u>1970</u>	
National Aeronautics and Space Administration										
Historical Artifacts	\$11,969	0	Satellite Tracking Program	\$4,610,297	\$2,200,000					
Interdisciplinary Communication	149,990	\$199,606	Recovery of Meteorites	150,000	0					
Geodetic Satellite Analysis	105,715	0	Miscellaneous	140,780	<u>89,980</u>					
Radio Meteor Research	492,000	250,000								
Telescope	767,000	847,000								
Miscellaneous	<u>216,585</u>	<u>227,640</u>								
	<u>\$1,743,259</u>	<u>\$1,524,246</u>								
Department of Defense										
Pacific Birds Program	\$190,080	0	Tropical Forest Ecology	\$50,894	0					
Mosquitoes in Southeast Asia	131,800	\$161,895								
Diseases in Overseas Areas	155,068	39,000								
Mammalian Parasites	91,299	100,937								
Miscellaneous	<u>384,966</u>	<u>299,237</u>								
	<u>\$953,213</u>	<u>\$601,069</u>								
Department of Health, Education, and Welfare										
Ecology & Behavior of Primates	\$16,436	0								
Cancer of the Pelvic Region	19,676	0								
Human Osteon Chemistry	72,506	0								
Curricula in Environmental Design	11,411	0								
Postdoctoral in Education	<u>15,047</u>	<u>0</u>								
	<u>\$135,076</u>	<u>0</u>								
Atomic Energy Commission										
Protein Properties	\$15,634	0								
Radiation & Plant Metabolism	<u>64,202</u>	<u>0</u>								
	<u>\$79,836</u>	<u>0</u>								

<u>Contracts</u>	<u>1969</u>	<u>1970</u>	<u>National Science Foundation</u>	<u>Grants</u>	<u>1969</u>	<u>1970</u>
Processing Antarctic Collections..	\$90,764	\$140,640	Taxonomic Study.....	.....	\$18,900	0
Science Information Exchange	1,800,000	1,600,000	Papers of Joseph Henry .....	.....	30,000	0
Miscellaneous	<u>18,000</u>	<u>0</u>	Marine Technician Program	.....	25,000	0
			Taxonomy of Grasses .....	.....	12,000	0
			Undergraduate Research	.....	
			Program.....	.....	35,070	0
			Miscellaneous .....	.....	<u>0</u>	<u>\$125,978</u>
					\$120,970.	\$125,978
National Institutes of Health						
Miscellaneous	\$95,326	0	Miscellaneous .....	.....	0	\$259,000
Department of the Interior						
Miscellaneous	\$22,780	0	Other	.....	
Miscellaneous	\$102,750	\$204,728	Miscellaneous .....	.....	\$25,110	\$85,587
Total, Contracts...	\$4,905,928	\$4,070,683	Total, Grants...	.....	\$5,233,127	\$2,760,545

PREPARED STATEMENT

Senator BIBLE. Your written statement, which is before me, will be placed in the record.
(The statement follows:)

Mr. Chairman and Members of the Committee.

Once again, I welcome the opportunity to appear before this Committee. This is the sixth time that I have been privileged to present the Smithsonian Institution's program. I have come to view these presentations as a sharing of information and accomplishments with a Committee whose interest, involvement, and support has been of primary importance to the Smithsonian. I realize, however, that our concerns are only a part of your Committee's larger responsibilities to the American public, to many of the goals and aspirations of the nation itself, and to a measured assessment of funding in proportion to available fiscal resources.

Notable Events

During this past year, there have been a number of notable Smithsonian events and developments which I would like to share with you.

--Visitor attendance climbed to almost 12,500,000 in calendar year 1969 reflecting a return to more orderly conditions in the Washington, D. C., area. About 750,000 of these persons came to see the lunar rock sample from Apollo 11, first displayed in September. An additional 75,000 persons visited the Anacostia Neighborhood Museum and 5,000,000 came to the National Zoological Park, a larger figure by far than any other zoo in this country. There is every reason to believe that this participation in our activities will continue to climb, especially as the period of the Bicentennial of the American Revolution approaches. The Institution will be provided with an unrivaled opportunity to play a major role in public education and the assessment of national objectives. An important corollary is a pattern of increased public and scholarly visitors as many programs enacted by the Congress come into being. This trend is apparent over the past five years

and will continue as the Smithsonian brings to the public the tremendous heritage of our nation in a variety of educational forms. In this connection, the National Museum of History and Technology (where we hope to center our Bicentennial activities) has just had its 30 millionth visitor since opening in 1964, surely a world's record for museum attendance.

--I am pleased to report that the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden is about to begin. Groundbreaking will take place in late March or early April. The Committee will share our pleasure and pride that the American public is now assured access to this important collection of paintings and sculpture in a major new museum taking its place on the Mall along with the greatest collections of national treasures assembled by any country.

--The Radiation Biology Laboratory has substantially completed its relocation from the basement of the original Smithsonian building to a modern laboratory building in Rockville, Maryland. It is anticipated that by mid-summer the Laboratory's research activities can be substantially resumed.

--The Renwick Gallery of Art has been turned over to the Smithsonian by the contractor. While considerable basic restoration and renovation work still remains to be done and must be funded, the Institution has proceeded with the development of plans for the building's use as a showcase of important Americana. We are aiming for a partial opening of the building early in calendar year 1971, with a full opening sometime thereafter when restoration work is completed.

--The President has requested that the Smithsonian assume responsibility for the operating budget of the National Zoological Park, previously funded in the District of Columbia budget. Although we are very much aware of the potential financial impact on this Committee's Appropriation Act, we believe this transfer reflects the fact that the Zoo is a national zoo, established

by an Act of Congress in 1890. Approximately 85 percent of its visitors come from outside the District of Columbia. As such, the operations of the National Zoo should be budgeted and presented as are the other national museums under the jurisdiction of the Smithsonian and this Committee.

--Throughout the Smithsonian's scientific activities there is an intensified involvement in basic studies and research support of direct relevance to man's relationship to and dependence on his natural surroundings. These efforts include the Astrophysical Observatory's investigations of the upper atmosphere and its relationship to atmospheric events. Its Orbiting Astronomical Observatory continues to provide scientific data heretofore never obtained. The National Museum of Natural History's capability to identify biological indicators of environmental change is of increased significance. The Radiation Biology Laboratory's unique determination of an apparent 16 percent decrease in the solar energy reaching the earth here in Washington, if representative of a worldwide condition, may have considerable importance to studies of crop and food production and to man's life in cities. Environmental studies at the Chesapeake Bay Center are beginning to establish baselines for biological prediction. Comparative evolutionary biology and behavioral relationships as well as oil-spill research are being emphasized by the Smithsonian Tropical Research Institute. The coordinated study of the physical and cultural development of man is underway in a number of our museum and research groups in the National Museum of History and Technology, the Center for the Study of Man, and elsewhere.

In this regard, let me mention our third international symposium, this one on recent advances in the understanding of social behavior of higher animals with the goal of improving our understanding of man's behaviour. This

seminar revealed an important characteristic of the Institution. A meeting such as this, assaying relations between human social behavior and principles drawn from the scientific study of animal behavior, seems instantly to knit together so many common concerns from within the Institution's seemingly disparate bureaus. Our symposia thus serve as points of focus for a wide range of associated Institution activities, from research projects to seminar series to exhibits, from productions for the media to special publications.

Although ecology has now become a popular theme, the Committee is well aware of the Institution's traditional and historical role of investigating and collecting data on man and his natural surroundings. Increasingly, national and international organizations, both private and governmental, are recognizing the Smithsonian's competence in this area and are coming to us for advice, consultation, and research assistance on ecological problems. For instance, the Smithsonian's expertise in assessing the environmental consequences of a Panama sea-level canal was recognized by the appointment of a staff member to the National Academy of Science's Special Committee on Ecological Research for the Inter-Oceanic Canal. Other Smithsonian staff and research bureaus are actively involved in advising this committee.

Let me also mention that more and more of our research is of an interdisciplinary nature. For example, new information on determining special characteristics and age of volcanic activity has been developed by the joint efforts of our anthropology and mineral sciences staff.

--The National Portrait Gallery had its first show under its new director. This exhibition of the portrait reliefs of Augustus St. Gaudens was unanimously praised by the critics. John Canady of the New York Times wrote, "The Saint Gaudens show is, in one word, beautiful, whether you are talking about the sculpture, the installation, or the combination of the two

with the handsomest intimate exhibition galleries in Washington or perhaps in this country." The Washington Post stated, "This is an exquisite show. With this, his first show here, Marvin Sadik has demonstrated his museum's ability to meet the highest standards of scholarship and taste." The National Portrait Gallery is preparing to play its part in the celebration of the Bicentennial of the American Revolution.

--The distinguished new director of the National Collection of Fine Arts, Joshua Taylor, took up his duties on January 2 of this year. He has already undertaken a careful survey of the holdings of this museum, many of which have long been on loan to various government offices, and has begun to reorganize the exhibition of the museum's permanent collection. Improved administrative procedures and a renewed emphasis on scholarship under Dr. Taylor's direction will strengthen the ability of the National Collection of Fine Arts to perform its important mission as a center for American art.

--A number of other notable events should be mentioned under the collective heading of public services. The Festival of American Folklife attracted over 600,000 persons to a program of craft demonstrations, concerts, and other performances. An educational radio service, "Radio Smithsonian," was established and began the continuing process of producing and making available to stations across the country recorded material covering the full range of the Smithsonian's enlightening and exciting activities. Through the Smithsonian Magazine and planned additional efforts in traveling exhibits, television and films, we hope to create more educational channels from our vast academic-cultural reservoir to people in their homes throughout the nation.

These varied extensions of a central theme, to "increase and diffuse knowledge," are part of the Smithsonian. They form a core of the knowledge

which we are attempting both to reinforce and to disseminate. It is imperative that in years to come young people, and their parents, keep up with the changing world but not at the expense of losing their ties with the past. This cannot be done by traditional pedagogical means. It must be done by a variety of skillfully selected techniques. It is our hope and intention that the Smithsonian will help to provide this illumination.

Goals and Objectives

This mandate provides us with our continuing goal for the future. Let me speak more specifically to a number of closely related program objectives and to our plans and requirements that will help us realize these objectives.

We are entering the decade of the 1970's, a period in which the nation will seek solutions to problems concerning the environmental consequences of technological advances and to problems of man's social and cultural relationships to one another. After much deliberate thought and discussion within the Smithsonian, we see three major objectives that will enable us to focus traditional kinds of careful and deliberate research, collections of multidisciplinary data, reference systems management, and public educational services on these national needs of the new decade. These are:

- to study and attempt to explain areas of science and the humanities which can increase man's knowledge and understanding of his surroundings as well as of himself;
- to achieve integration and mutual reinforcement within our arrays of reference collections, books, and other information resources, in order that these resources can be applied more effectively to research needs; and
- to devote an increasing measure of time and effort to studies of cultural and technological development and change, and to improved educational programs bearing upon this theme.

Requests for Fiscal Year 1971

Turning now to our request for fiscal year 1971, let me say that we are well aware of the strong fiscal responsibilities and pressures placed on the Congress by national and international needs, not the least of which is the absolute necessity to slow inflation. I plan to say more about the effects of inflation on the Smithsonian Institution, but I believe the requested appropriations provide a proper balance between the need for program growth and the need to hold down all but essential government spending. Although we can see clearly how the contributions of each of our museums, laboratories, and support activities fits into the attainment of long-range Smithsonian objectives, we are not seeking additional program funding for some 15 of these activities.

In examining our appropriation requests, the Committee should consider several specific aspects of what initially may appear to be unusually large amounts.

An amount of \$3,125,000 represents the total requested appropriation for the National Zoological Park, an "increase" only because the Zoo's operating budget is new to our "Salaries and Expenses" appropriation.

Appropriations of \$10,227,000 are requested to continue construction, restoration, and renovation projects, most of which have been previously authorized and partially funded by the Congress. Of this total, the sum of \$8,897,000 is to meet contractor payments resulting from what we believe will be the speedy construction and completion of the Hirshhorn Museum.

An increase of \$3,777,000 on our estimated "Salaries and Expenses" base of \$29,465,000 is requested for Smithsonian programs designed to serve those who visit and participate in Institutional activities for services, studies, information, education, and recreation.

The requested appropriation of \$4,500,000 for the Special Foreign Currency Program, an increase of \$2,184,000, does not represent a new assessment against the American taxpayer and should not be considered as being in competition with our dollar requests.

I would like to discuss each of our appropriation requests in some greater detail, showing relationships to our objectives.

"Salaries and Expenses"

Environmental Assessment, Monitoring, and Prediction

For fiscal year 1971, the Smithsonian Institution is requesting a "Salaries and Expenses" increase of \$6,902,000 on an estimated base of \$29,465,000. This increase includes the transfer of the proposed Zoo operating budget of \$3,125,000. An amount of \$400,000 is for necessary pay purposes. The balance of \$3,377,000 is distributed in the following categories of activity.

An amount of \$1,350,000 is for improved basic research, documentation, and education related to environmental assessment, monitoring, and prediction. We will give particular emphasis to building on work that the Institution has been doing for over 100 years. Selected research projects in the National Museum of Natural History in biology, geology, and anthropology, chosen because of their importance to the scientific community and their relevance to current national problems, would be funded. Capitalizing on 40 years of project research, the Smithsonian Tropical Research Institute will establish an environmental monitoring program on Barro Colorado Island and conduct an expanded series of comparative marine ecological studies. Related information pertaining to the temperate zone will be provided at the

strategically located Chesapeake Bay Center. In the budget year, we will work to establish the Radiation Biology Laboratory firmly in its new building in order that a fully productive basic research program on the effects of radiation on living organisms can be developed. Its extraordinary measurements, started in 1907, now represent an unique series not performed elsewhere.

As additional items under this group of related activities, the resources of the seas can be more fully identified if corrective funding action can be taken to meet a steadily worsening backlog in sorting of marine biological and geological collections and requests for samples at the Smithsonian Oceanographic Sorting Center. Continued funding of our Center for Short-Lived Phenomena will provide a global information network speedily locating and reporting on natural events of tremendous interest to environmental scientists, geologists, and government officials. With regard to the study of man as part of the total environment, we are ready to begin actual work on the revision of the Handbook of North American Indians. Increased funding for our higher education and research training program will provide additional opportunities for outstanding individuals from colleges and universities to share in and contribute to our investigative efforts.

And, lastly, the Institution is seeking special program funding for the Environmental Sciences aimed at stepping up our inherent capabilities for identifying biological benchmarks, monitoring rates and processes of change, undertaking research in man's social adaptations to his surroundings, communicating environmental knowledge to the public through exhibits and other means, and developing a national referral center for biological data.

Reference Resources

An increase of \$455,000 is to help achieve reinforcement within our arrays of reference resources. A curator's expertise and personal knowledge,

built up over a lifetime of study, represents an information resource as do the books and reprints he requires and the ordered materials of a collection. We are purposefully seeking ways to coordinate these resources so that each reinforces the others to the maximum practical extent. Not books separate from objects; not specialized information services separate from either; but rather integrated reference systems which can unite all three. The Smithsonian's uniqueness and value depends upon our success in being a different kind of marshalling center where recorded knowledge can give wide access to pertinent inquiry.

In fiscal year 1971, we feel that it is most important to seek your support in applying electronic data processing techniques to handling the complex data associated with our vast art, history, and science collections; to strengthening library staff and materials critical to productive research and education efforts; and to improving our photographic laboratories which provide visual information of a very important kind.

Cultural and Technological Development and Change

We are requesting an increase of \$1,125,000 to be used for studies and displays of cultural and technological development and change, so closely tied-in with man's own physical evolution and to his relationships to his natural surroundings. Much more needs to be done to develop exciting and stimulating displays of these themes, not only for our use but also to benefit other museums in their education efforts. We are seeking funds, therefore, to develop experimental exhibits and to provide opportunities for museum training under the National Museum Act. To meet the accelerated public interest in man's aeronautical and astronautical achievements, funds are requested to meet the Institution's commitments under our space artifacts program.

The Anacostia Neighborhood Museum has demonstrated its ability to meet the practical needs of the community. Building upon this public acceptance and involvement, we are anxious to increase the educational role of this museum in analyzing and interpreting the history of the community and its peoples. The award of the Hirshhorn construction contract now clears away all major road blocks to providing the museum building. Companion steps must now be taken to assure that the collections and exhibits will be ready for display. We are also very enthusiastic about our other new museum--the Renwick Gallery of Art--and are requesting funds to prepare for a fiscal year 1971 public opening. One of the most popular activities in which the Smithsonian has engaged continues to be its Folklife Festival and similar presentations. To bring the tools and musical instruments out of glass cases, to evoke the magic of folk crafts and music, all of this is to communicate directly to the people. We are seeking a small increase in funding for these activities.

The 200th anniversary of the United States is a momentous occasion for all of us. The Bicentennial of the American Revolution presents an extraordinary opportunity to review national accomplishments and goals, and to renew public hope and confidence in the future. The Institution can play an important role in this observance, as we did in 1876, drawing upon our scholarly staff, collections documenting the history and development of the United States, effective working relationships with museums and other organizations across the nation, and strong attraction for the visiting public. The American Revolution Bicentennial Commission has already reached two vital conclusions. First, the Bicentennial should be national in scope and not confined to the original 13 colonies, and second, that the event is an

opportunity to review and assess the first 200 years of the United States, not merely to commemorate the events of the last quarter of the 18th century. These two policy decisions establish the framework within which the Smithsonian plans its participation. It is our intention to draw on all the elements of the Institution to form a coordinated program of activities which are festive in nature, as well as those which capture the ideas and ideals of the American Revolution period. We are proposing to develop a comprehensive array of exhibitions, both for Washington in planned pavilions on the National Museum of History and Technology and for circulation to other communities. Also planned are publications, seminars, and advisory and technical services to assist other museums and state and local history organizations in their commemorative activities. In order to mount any significant program at all, we must begin to phase into these activities now.

Administrative and Central Support

An additional amount of \$447,000 is sought for administrative and central support services and for the maintenance, operation, and protection of buildings. Cohesive programs must be given concentrated management and technical support and assistance. These requested funds will be used to strengthen our financial and personnel management capabilities and for the Buildings Management Department. Included in this latter request are the costs of serving the Renwick Gallery as it is being prepared for opening and for operations afterwards, and funding the higher costs of utilities, communications, the repair and preventive maintenance of security and fire detection systems, elevators, and escalators. These higher costs are brought about by additional building spaces provided by Congressional authorization, increased public use, and inflation in the price of goods and services. Our present level of funding is placing us farther behind annually in our ability to service our present assigned responsibilities.

Special Foreign Currency Program

The requested increase for fiscal year 1971 for the Special Foreign Currency Program is \$2, 184, 000 for a total appropriation of \$4, 500, 000. The increase is essential to support urgent field studies by American museums, universities, and other institutions of higher learning in the Smithsonian's traditional fields of systematic and environmental biology, astrophysics, anthropology, and museum programs. These studies increasingly are recognized as basic to an understanding of immediate national and world problems of environmental quality and cultural change. There are a number of very important points about this program. Let me mention several of these. During fiscal year 1970, funds are sufficient only to cover on-going project activity which has increased from nine grants in fiscal year 1966 to 140 at the end of fiscal year 1969. There are no funds to support new investigations this year, yet new inquiries continue to average about one a day. These funds are an advantageous source of research monies because they are not new appropriations of tax dollars and because delay in their use means continuing loss to the United States Treasury through inflation and devaluation. Use of these funds does not contribute to a balance of payments deficit. Smithsonian Foreign Currency Program grants have benefited more than 200 institutions in 25 states. Accomplishments include over 40 research publications, 150 postdoctoral research opportunities for Americans, 110 training opportunities for American Ph. D. candidates who obtained essential field work experience, and valuable additions to research collections of the National Museum of Natural History and of other grantee institutions in the form of archeological, ethnographic, and biological specimens. This program has had solid accomplishments and offers a great potential for

additional contributions. I would like to reemphasize that an increased appropriation should not be considered as being in competition with our other budget requests.

Construction and Restoration and Renovation of Buildings

National Zoological Park

For fiscal year 1971, the Smithsonian must again defer a request for funds to resume progress toward completion of the improvement program. This will be the fourth consecutive year of the holding action, with approximately two million dollars of work, planned in connection with the approved 10-year construction program initiated in 1963, being deferred. This deferral includes the much-needed public service building containing visitor orientation and restaurant facilities. An appropriation of \$200,000 is requested for repairs and continued maintenance to keep those buildings and exhibits, which eventually will be replaced, in usable condition. Included in the necessary projects are waterproofing buildings, painting of buildings and cages to prevent structural damage, and repair of outside cages.

Restoration and Renovation of Buildings

Our total request for restoration and renovation of existing buildings amounts to \$1,130,000. Included in this request is an amount of \$300,000 to complete a several year program of restoration of the Renwick Gallery of Art on Pennsylvania Avenue. These funds will make this historically important and centrally located building fully available for use and enjoyment by the public. An appropriation of \$500,000 is sought to begin to implement the plans, funded in fiscal year 1967, for the renovation of the 90-year old Arts and Industries building. We are seeking to construct second floor decks in this building to provide much needed space for administrative, classroom, and other public service purposes. An additional \$25,000 are sought to

continue emergency repairs to badly deteriorating facilities used by our Smithsonian Tropical Research Institute for biological research. The care and preservation of many of the organic specimens in the natural history collections, as well as the safety of the staff in handling toxic fumigants, requires that we obtain \$75,000 for the construction of a modern fumigation facility in the Natural History building. Improved space utility and the need to house properly our library collections including rare and valuable books prompts our request for \$50,000 to construct a mezzanine level in space now used by the Smithsonian Libraries in the Natural History building. We are still exploring ways to provide improved management of our collections by developing an off-Mall central museum storage and study facility. An appropriation of \$80,000 is requested for the preparation of plans and specifications for the first increment of a long-range development program. And, lastly, we are seeking \$100,000 to prepare feasibility studies for the future building needs of the Smithsonian Institution, including research facilities and museum space to improve and expand our exhibits and educational programs for the benefit of the people of the United States.

Joseph H. Hirshhorn Museum and Sculpture Garden

Construction work on this new museum building and its associated sculpture garden will be in full progress during fiscal year 1971. An appropriation of \$8,897,000 is requested to liquidate the balance of the contract authority of \$14,197,000 provided in the 1969 appropriation. This appropriation will be used to complete funding of construction contracts, to finance supervision and related construction management costs, and to provide some necessary equipment and facilities to install the Hirshhorn Collection in the completed building.

Inflation

I would like to return to the damaging effects of inflation that I mentioned earlier. Inflation is severely affecting the growth and performance of the Institution. It can be shown that over two-thirds of the appropriation increases experienced since 1968 have been directed to nondiscretionary costs associated with new building space and to offsetting inflationary pressures. Only about one-third of these increases represents a real strengthening of program operations.

In fact, scientific research and curatorial activities in some museums may not be faring as well now as they were in 1968. A good example would be the National Museum of Natural History. The number of professional research staff at the Museum has remained at approximately 100 since 1968. The salary levels have increased about 20 to 25 percent; the total operating budget has increased only about 16 percent, or \$500,000. To meet this faster rate of growth in professional salaries not fully offset by pay supplementals, the Museum has had to reduce support spending in other areas. The portion of total Museum funding devoted to scientific staff support in the form of equipment, travel, and the like, has decreased from 13 to 11 percent over the past two years. This trend has created hardships in the Museum's day-to-day scientific research and collections operations where prices for supplies and equipment also have continued to increase. For example, there is an annual need for several thousands of dollars for storage cases to accommodate newly acquired natural history collections. These cases represent a major museum expenditure. They are ordered in varying sizes--from 2" drawer depth to 8" depth. They are labor-intensive in their construction. For several years now, the prices of these items have been rising. The Institution has shopped the various supply

outlets and now purchases the cases from a manufacturer in western Maryland. Still, the unit prices have increased 30 to 40 percent since 1968. Because of these and other inflationary pressures, the National Museum of Natural History may be operating in real terms with \$100,000 less than in 1968.

The same kind of situation prevails across the entire Institution. The Smithsonian's operating appropriation in 1970 will be about \$29,600,000 (assuming the 1970 requested pay supplemental is approved), or \$5,300,000 above the 1968 level. This is a 21 percent increase over 1968, a sizeable gain on the surface. It must be kept in mind, however, that the Institution's employment during this time has remained relatively stable. Current employment is only approximately four percent above 1968 levels, and roughly the same proportions continue to be devoted to guards, laborers, clerical, and professional research and curatorial staff. Of this \$5,300,000 increased funding, roughly 64 percent can be associated with higher prices and the necessity of improving the competitive salary situation in government. Another four percent reflects nonpersonnel costs associated with new building space. About one-third of the \$5,300,000 can be directly related to strengthening and developing the base of Institutional programs. Thus, the apparent increase reduces to a real annual growth in the Smithsonian federal base of about four to five percent.

For illustration, a competent scientist to conduct research or curatorial investigations in one of the dozen or so areas of Smithsonian responsibility could have been employed for approximately \$17,000 in 1968. Today, this figure is closer to \$21,000 in order to obtain quality performance in a talent-oriented economy such as ours. Some examples of price increases in other areas which have affected the Smithsonian operations are in the areas of general maintenance and improvement of facilities, and the construction of exhibits. The Institution annually uses a large quantity of lumber, particularly plywood and sugar pine, for these purposes, and the market prices of these commodities have increased 17 percent and 21 percent

since 1968. We estimate that prices for utilities are about 11 percent higher than in 1968. The price of laboratory coats increased nine percent between 1969 and 1970; guards' uniforms increased about seven percent between 1969 and 1970; a roll of film now costs us about eight percent more than in 1968. The list could be lengthened indefinitely.

Inflationary pressures, along with related aspects of continuing controls and curbing of government employment, will steadily diminish effective performance in all operational areas. We are regularly reviewing our use of current manpower and dollar resources. It is by no means certain that we will be able to sustain our current level of public services including the present and planned schedule of public visiting hours to our buildings. This is a matter we are watching closely.

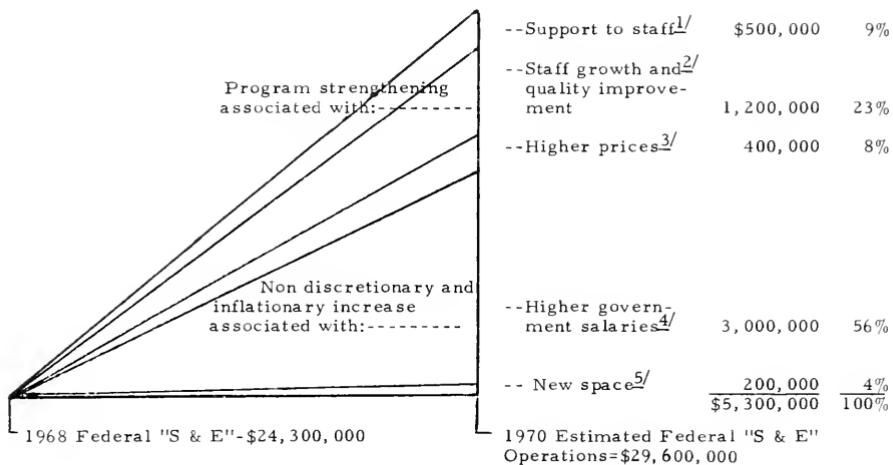
Selectivity and Priority Identification

The 1971 budget request has been constructed in a manner to offset some of the effects of inflation and to spur the growth of selected Institutional activities. The budget request reflects a moderate expansion in personnel while focusing on providing some additional program support funds.

These requested increases are the result of difficult choices and the identification of priorities at each stage of our analysis and review of the use of current resources and our essential requirements for the budget year. As the Congress will realize, Executive pressures exercised through the Bureau of the Budget have been very strictly levied upon us this year.

All but our highest priority funding needs have been temporarily set aside. We are concentrating our requested increases on meeting existing and traditional Institutional obligations and lines of endeavor that seem particularly timely and applicable in the 1970's. For 124 years, with roots that extend back even further, the Institution has gathered and applied its resources to the task of providing the American people with greater knowledge and appreciation of their common environmental, cultural, and technological heritage. With the continued support of the Congress, we will improve upon our performance. This support is deeply appreciated.

SMITHSONIAN INSTITUTION

Estimated Distribution of Increases in
Federal "S & E" Operations
1968-1970

1. This \$500,000 represents the real increase after allowing about 4 percent per year for inflationary price increases (a conservative rate).
2. This includes an estimated \$900,000 related to a 4 percent employment growth and approximately \$300,000 of expenditures for increasing the quality of staff 1968-1970.
3. Conservatively reflects a 4 percent annual increase above 1968 levels for inflation in non personnel costs.
4. Includes an estimated \$2,500,000 to cover costs of higher governmental salary levels, and \$500,000 for cost-of-living increases.
5. Includes additional building costs (non personnel) over 1968 levels related to Fine Arts and Portrait Gallery and the Renwick Gallery.

1970 APPROPRIATION AND 1971 BUDGET REQUEST

Senator BIBLE. Tell me first, what is the total amount of money that you are asking for in fiscal year 1971?

Dr. RIPLEY. The total amount comes to \$51,094,000.

Senator BIBLE. \$51,094,000. How much was appropriated in the current year, fiscal year 1970?

Dr. RIPLEY. \$39,320,000, including operating expenses for the zoo.

Senator BIBLE. \$39,320,000. How much of that is accounted for by the transfer of the zoo from the District of Columbia to the Smithsonian Institution?

Dr. RIPLEY. \$2,814,000.

Senator BIBLE. \$2,800,000 represents the zoo figure?

Dr. RIPLEY. That is right.

Senator BIBLE. Then you are up about \$10 million over what you were in the preceding fiscal year? Is that a correct statement?

Dr. RIPLEY. \$11,774,000.

Senator BIBLE. \$11,774,000 more than was appropriated last year?

Dr. RIPLEY. That is right, Senator.

1970 BUDGETARY RESERVE

Senator BIBLE. Now of the money that was appropriated last year, how much was placed in a budgetary reserve?

Dr. RIPLEY. I will just have to get that figure. Approximately \$2.5 million, Mr. Chairman.

Senator BIBLE. What activities of the Smithsonian were affected by placing the \$2.5 million in reserve?

Dr. RIPLEY. This was essentially construction at the zoo, major repairs and the building of service facilities at the zoo. This appropriation comes within the regular Smithsonian budget. In addition, work on the research facilities for the Radiation Biology Laboratory was affected.

Senator BIBLE. Will these funds be released from reserve so that you may use them for the purposes for which they were appropriated?

Dr. RIPLEY. It is assumed, Mr. Chairman, that these deferred funds will be available for obligations on July 1, 1970, unless released prior to that date by the Bureau of the Budget.

1970 PAY RAISES

Senator BIBLE. Have you diverted any of your reserve funds, whatever, for pay increases?

Dr. RIPLEY. I think I will have to ask Mr. Bradley to answer that. He has the figures ready on that one, Mr. Chairman, about our pay increases.

Mr. BRADLEY. Mr. Chairman, none of the reserve construction funds were diverted for pay purposes. On the General Schedule pay raises we were allowed to seek an estimated supplemental of almost the whole amount except \$29,000. On the Wage Board increase we were required to absorb it, and that was in the amount of \$136,000. Those two combined absorptions give us the \$165,000 worth of forced savings.

Senator BIBLE. Were they taken from some specific line item that was appropriated for another purpose?

Mr. BRADLEY. Mr. Chairman, I think it is only fair to say that the bulk of it had to come from buildings management because buildings management has the bulk of our approximately 800 Wage Board employees.

Senator BIBLE. Very well. Thank you.

Now, with the preliminaries out of the way, Dr. Ripley, you may proceed. I wanted to get a broad look at what these figures amounted to.

Your full statement has been incorporated in the record.

BUDGET INCREASE: TRANSFER FROM DISTRICT OF COLUMBIA OF NATIONAL ZOOLOGICAL PARK

Dr. RIPLEY. Yes, I understand. Of course, in regard to the total increase requested for fiscal year 1971, Mr. Chairman, the amount of \$3,125,000 represents the requested appropriation for the National Zoological Park. This is an increase only because the zoo's operating budget is new to our "Salaries and Expenses" appropriation. This transfer was suggested this year not by us but by the Office of the President.

Senator BIBLE. What did you say that figure was again?

Dr. RIPLEY. \$3,125,000.

Senator BIBLE. I thought you said \$2.8 million. I must have misunderstood.

Dr. RIPLEY. \$2.8 million is the current year's budget. Next year's proposed budget for the zoo which represents a portion of the increase requested is \$3,125,000.

Senator BIBLE. Well, did funds for the zoo come down through the Smithsonian last year?

Dr. RIPLEY. For a number of years the construction funds have come through the Smithsonian but for fiscal year 1970 the "Salaries and Expenses" funding for the zoo is new to our budget.

Senator BIBLE. And this year they came through the District of Columbia budget. Is that correct?

Dr. RIPLEY. That is correct.

Senator BIBLE. All right. On that point, because questions might be asked, after all these years of having operated the zoo under the District of Columbia government, why now is it to be transferred to the Smithsonian?

Dr. RIPLEY. May I say, Mr. Chairman, that President Nixon has requested that the Smithsonian assume responsibility for the operating budget of the National Zoological Park previously funded in the District of Columbia budget. Now we are very much aware of the potential financial impact on this committee's appropriation account, but we believe that this transfer reflects the fact that the zoo is a National Zoo established under the Smithsonian by Act of Congress in 1890.

PARK VISITATION ALLOCATIONS

Approximately 80 percent of its visitation comes from outside of the District of Columbia.

Senator BIBLE. How about the metropolitan area?

Dr. RIPLEY. That is approximately 50 percent which includes the 20 percent from the District.

Senator BIBLE. Eighty percent of it is outside the District of Columbia and of that 80 percent, 30 percent is made up of visits from Montgomery County and Virginia, is that what you are saying?

Dr. RIPLEY. The total visitation from the greater metropolitan area may reach as much as approximately 50 percent.

Senator BIBLE. Half of it?

Dr. RIPLEY. The interesting thing in the survey that we performed last year is that indeed half of the total visitation which appears to be virtually the largest visitation of any zoo in the country comes from around the country. In other words, the same national tourist flow that comes to the Smithsonian buildings on the Mall appears to be reflected in the visitation at the zoo.

Senator BIBLE. What was the visitation at the zoo last year?

Dr. RIPLEY. We believe that it was more than 2½ million.

Senator BIBLE. Is that up from the preceding year?

Dr. RIPLEY. Yes.

Senator BIBLE. Five- to 10-percent increase annually?

Dr. RIPLEY. I don't have the exact figure. May I ask Dr. Reed?

Senator BIBLE. Dr. Reed, would you have any comment?

Dr. REED. We believe it has been rising from 7 to 10 percent a year during the last years.

Senator BIBLE. Last year you had what, 2½ million?

Dr. REED. Over that.

Dr. RIPLEY. Over 2½ million.

TRANSFER OF FINANCIAL BURDEN FROM DISTRICT

Senator BIBLE. Of course I suppose it is self-evident that part of the reason for making this transfer to you other than the national visitation at the zoo is to relieve the District of Columbia of its financial burden. I mean to transfer the financial burden from the District of Columbia to the Federal Government must have been one of the reasons, would you not think so?

Mr. RIPLEY. I would be willing to think so although no one has told me specifically one way or the other. I have not been informed.

MESSAGE OF THE PRESIDENT

I could read you the item of the President's message.

Senator BIBLE. Why don't you just put the President's message in the record at this point, it will speak for itself.

Dr. RIPLEY. We have a paragraph to that effect from his message.

Senator BIBLE. All right. Without objection that will be made a part of the record.

(The excerpt follows:)

District of Columbia accounts. Two items formerly a part of the District of Columbia budget are now proposed for appropriation to Federal agencies. The appropriations recommended for the National Park Service of the Department of the Interior include amounts required for the management and maintenance of Federal parks located in the District of Columbia; and the estimates for the Smithsonian Institution include amounts for operating the National Zoological Park. This is appropriate in each case because the benefits derived, as well as the operating responsibilities, appear to be Federal rather than local.

ADDITIONAL BUDGET INCREASE: CONSTRUCTION, RESTORATION, AND
RENOVATION PROJECTS

Senator BIBLE. Now you may proceed.

Dr. RIPLEY. Appropriations of \$10,227,000 are requested to continue construction, restoration, and renovation projects, most of which have been previously authorized and partially funded by the Congress.

HIRSHHORN MUSEUM

Of that total, the sum of \$8,897,000 is to meet contractual payments resulting from the construction of the Hirshhorn Museum. I am happy to report, Mr. Chairman, that the contract has been signed and we estimate that ground will be broken in April for that museum and it is scheduled to be completed in 1972.

Senator BIBLE. Now you are asking how much for the Hirshhorn Museum?

Dr. RIPLEY. \$8,897,000 which will conclude the contract obligations for that museum.

Senator BIBLE. That justification will be placed in the record at this point.

(The justification follows:)

CONSTRUCTION
(JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN)
(Liquidation of Contract Authority)

1969 Appropriation.....	\$2,000,000
1970 Appropriation.....	\$3,300,000*
1971 Estimate.....	\$8,897,000

By the Act of November 7, 1966, the Congress provided a site on the Mall for construction of the Joseph H. Hirshhorn Museum and Sculpture Garden and provided statutory authority for the appropriation of construction and operating funds. Within this appropriation authority, \$803,000 were appropriated in fiscal year 1968 for the preparation of plans and specifications. In fiscal year 1969, an additional \$2,000,000 were appropriated to start construction, and authorization was granted by the language in the appropriations bill to enter into construction contracts in an amount not to exceed \$14,197,000. An additional \$3,300,000 were appropriated in fiscal year 1970 toward liquidation of the contract authority.

The justification in support of the fiscal year 1970 budget request indicated that construction bids would be opened in the spring of 1969 and construction would be started soon thereafter. Bids were opened on May 27, 1969, but had to be rejected because the low bid exceeded available funds. Although this project was affected adversely by an unusual and unexpected sudden escalation in construction costs, the Congress will not be requested to provide an additional authorization of funds. The General Services Administration was instructed to revise the drawings and scale down the scope of work to stay within the existing authorization. Drawing revisions were completed in October 1969 and new bids were opened on December 18, 1969. Construction is now scheduled to start about March 1970 and be completed in about two years.

Because construction work will be in full progress during fiscal year 1971, an appropriation of the remaining \$8,897,000 is requested to liquidate the balance of the contract authority. This appropriation will be used to complete funding of construction contracts, to finance supervision and related construction management costs, and to provide some necessary equipment and facilities to install the Hirshhorn collection in the completed building.

* Excludes \$200,000 appropriated for the relocation of the Medical Museum (Armed Forces Institute of Pathology).

CONSTRUCTUAL CHANGES TO ACCOMMODATE AUTHORIZED FUNDING

Senator BIBLE. This represents the balance of the legislative authorization, is that correct?

Dr. RIPLEY. That is right, sir.

Senator BIBLE. That is the balance?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. Now will all this be obligated during fiscal year 1971?

Dr. RIPLEY. We believe so, because the contract calls for very speedy construction. We will break ground in April and we propose to finish the building in 1972.

Senator BIBLE. I recall you wrote me about this and your original bids were considerably higher than your available authorization and you were making some changes in order to provide a building which was within the funds authorized. What changes did you make?

Dr. RIPLEY. We made a variety of changes which involved cutting down in the size and scope of the museum and changes in the exterior design which were then subsequently approved by the Fine Arts Commission. Instead of the use of marble which is, of course, an expensive item, we substituted an exposed aggregate finish using granite chips. We believe this surface now will actually be more suitable because it will resemble more in its texture that of the Freer Gallery across on the other side of the Smithsonian Building. We also cut down slightly in the approach to the sculpture garden although we have not actually cut down the size of the sculpture garden in any way.

UTILIZATION OF SPECIAL CAPITAL FUND PLEDGED AS ENDOWMENT BY MR. HIRSHHORN TO COVER CLERICAL ERROR

The resulting savings allowed us to rebid and a construction company made a successful bid under the estimated amount of money that we would have available. Unfortunately the company discovered a clerical error which was a valid clerical error of some \$700,000 which put us over our authorized funding. As a result Mr. Hirshhorn himself has agreed to allow us to draw on a special capital fund of \$1 million which he had pledged towards the endowment of the museum.

I believe this was the letter to which you are referring.

Senator BIBLE. Yes, you wrote me about that.

Dr. RIPLEY. We are now in the clear with a mixture of federally appropriated funds and Mr. Hirshhorn's pledge to meet the obligations embodied in the firm contract which has now been approved by General Services Administration and the General Accounting Office and signed by the contractor.

I am very happy about this because this will allow us to accept for the Nation, in effect, some \$40 million worth of art.

Senator BIBLE. Has the contract actually been let?

Dr. RIPLEY. Yes, it has, sir.

Senator BIBLE. Again, what is the total construction time?

Dr. RIPLEY. We estimate the building will be completed in 1972.

Senator BIBLE. The end of 1972?

Dr. RIPLEY. In the fall of 1972.

Senator BIBLE. Will there be other costs involved in the construction of the Hirshhorn Museum?

Dr. RIPLEY. Not as far as we know. Not for construction.

Senator BIBLE. This is supposed to be the total final figure?

Dr. RIPLEY. This is the construction total, yes.

Senator BIBLE. You will have landscaping and that sort of thing, won't you, or will that be carried along in the budget?

Dr. RIPLEY. I think the landscaping is included in the present budget.

Senator BIBLE. Included in the \$8,897,000?

Dr. RIPLEY. Yes.

BUILDING FURNISHINGS: CONTINGENCY FUNDS

Senator BIBLE. Are the furnishings required?

Dr. RIPLEY. The furnishings are not included at this time.

Senator BIBLE. Do you have an estimate of what they will cost? It can be supplied for the record, unless you have it. Just give me a round figure.

Mr. BRADLEY. Mr. Chairman, it is approximately \$600,000. The way this appropriation is worded, if we don't have too much in the way of construction emergencies and we don't have to go into change orders, then the funds would be available for some of the furniture and equipment.

Dr. RIPLEY. That is funds presently being held for contingencies.

Senator BIBLE. You are hoping to do that with this overall figure?

Mr. BRADLEY. Yes. We have a contingency item in that total of \$770,000 but we have to see how we get through the construction first.

BUILDING MANAGEMENT

Senator BIBLE. I see. Now, what will be your estimated annual operation and maintenance for Hirshhorn? Do you have a figure for that?

Dr. RIPLEY. Yes, we do, sir. That is, we have a present budget for the Hirshhorn. I am not sure that we have the 1972 amount at this time. Do we have that, Mr. Bradley?

Mr. BRADLEY. The estimate will be including the sculpture garden, Mr. Chairman, about \$1 million a year for what we call the buildings management part of the Hirshhorn Museum as distinguished from the curatorial staff; that is, the professional staff. But to heat, light, guard, clean, and repair the building will be approximately \$1 million. That funding is not, of course, before you.

Senator BIBLE. I understand that, but I am just looking toward the future. Some day I assume it will be before us. This is not going to be carried by Mr. Hirshhorn.

Mr. BRADLEY. No.

Senator BIBLE. This will become a Federal obligation.

Mr. BRADLEY. Yes.

Senator BIBLE. How about the other function that is going to be performed there, the experts—or what is the word you use for them?

CURATORIAL STAFF

MR. BRADLEY. Curatorial staff.

Senator BIBLE. How much will that increase?

Dr. RIPLEY. Do we have anything on that for the future, Mr. Bradley?

Mr. BRADLEY. Yes, sir; we are approximating \$600,000.

Senator BIBLE. In other words, then, there will be an annual Federal obligation of something in the neighborhood of \$1,600,000 per year. All right. Thank you, Dr. Ripley. I think you have developed the Hirshhorn very well and I think that is sufficient on this.

You may proceed.

INSTITUTIONAL ACTIVITIES FOR SERVICES, STUDIES, INFORMATION,
EDUCATION, AND RECREATION

Dr. RIPLEY. We request, Mr. Chairman, the sum of \$3,777,000 for our programs designed to serve those who visit and participate in the institutional activities for services, studies, information, education, and recreation.

As you know, Mr. Chairman, since the 1850's the Smithsonian has accepted the responsibility of administering the national collections for public enjoyment and enlightenment and over the years the Congress has appropriated close to \$500 million dollars to construct and operate these buildings which house the national collections and also to support the staffs who must prepare exhibits and appropriate displays and demonstrations for the visitors.

SPECIAL FOREIGN CURRENCY PROGRAM

In addition, we request an appropriation of \$4½ million for the Special Foreign Currency Program. This represents an increase of \$2,184,000 although it does not represent, let me say, a new assessment against the American taxpayer.

MUSEUM PROGRAMS AND RELATED RESEARCH

Senator BIBLE. There will be placed in the record the fiscal year 1971 justification for an appropriation of \$4,500,000 for museum programs and related research to be met through the Special Foreign Currency Program. This is an increase of \$2,184,000 over the amount appropriated last year.

(The justification follows:)

**MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)**

1969 Appropriation	\$2,316,000	
1970 Appropriation	2,316,000	
1971 Estimate	4,500,000	.

An appropriation of \$4,500,000 in foreign currencies which are determined by the Treasury Department to be excess to the needs of the United States is requested for a program of grants to United States institutions for essential field research in archeology and related disciplines, systematic and environmental biology and astrophysics, as well as for museum programs and for other Smithsonian interests.

The requested increase of \$2,184,000 in foreign currencies is to be devoted to strengthening the research programs of United States universities, museums, and other institutions of higher learning in those countries where the United States holds excess currencies. The increase is essential particularly to support urgent field studies in the Smithsonian's traditional fields of systematic and environmental biology and anthropology which today are recognized as basic to an understanding of the immediate national and world problems of environmental quality and cultural change. The increase is essential also to support on-going and new research, some long in preparation, which contributes to United States national programs under, for example, the International Biological Program, the Intergovernmental Oceanographic Commission of UNESCO, the National Aeronautics and Space Administration, and the United States National Museum.

Funds are requested for the following programs:

	<u>FY 1969 Appropriation</u>	<u>FY 1970 Appropriation</u>	<u>FY 1971 Estimate</u>
Archeology and Related Disciplines.....	\$1,120,000	\$1,105,000	\$1,500,000
Systematic and Environmental Biology.....	1,046,000	1,046,000	1,800,000
International Biological Program.....	....	....	500,000
Museum Programs.....	40,000	40,000	100,000
Astrophysics.....	95,000	105,000	570,000
Grants Administration.....	<u>15,000</u>	<u>20,000</u>	<u>30,000</u>
Total.....	\$2,316,000	\$2,316,000	\$4,500,000

IN FISCAL YEAR 1970, NO FUNDS FOR NEW RESEARCH

During fiscal year 1970 funds, including all previous appropriations, were sufficient only to cover the cost of on-going research; there were no funds for new research. Program activity has steadily increased from nine grants

during the first fiscal year, 1966, to 140 at the end of fiscal year 1969, up from 100 at the end of the previous year. New inquiries about foreign currency uses continue to average one a day. Such growing foreign currency activity reflects both the scientists' search for alternatives to declining federal research dollars and an expanding Smithsonian Special Foreign Currency Program authority. Because there are no funds for new research, many worthy projects long in preparation and now being formally submitted for funding, cannot be supported and may be abandoned as participating scholars, always under pressure to publish, seek other research opportunities. It is estimated, therefore, that a realistic level of appropriation for the Smithsonian Foreign Currency Program in future years would be \$6,000,000.

USE OF FOREIGN CURRENCIES SAVES HARD DOLLARS

Special Foreign Currency Program appropriations are an advantageous source of research monies both because they are not new appropriations of tax dollars and because delay in the use of the "excess" accounts means continuing losses to the United States Treasury as these accounts lose value through inflation and devaluation. Moreover, these appropriations do not add appreciably to the President's budget total because the Commodity Credit Corporation reduces its appropriation request by an amount equal to the amount of foreign currencies expended.

At the same time, Special Foreign Currency Program appropriations contribute to essential national research objectives abroad without contributing to a balance of payments deficit. Moreover, Smithsonian Foreign Currency Grants frequently serve as dollar-saving supplements to the dollar grants of both public and private agencies like the National Science Foundation, the National Institutes of Health, The World Wildlife Fund, the John D. Rockefeller III Fund and the Wenner-Gren Foundation. In such cases, the foreign currency grants cover costs in the host country; the dollar grants are expended in the United States for equipment not available in "excess" currency countries, for American salaries, laboratory fees and the like.

FOREIGN CURRENCIES SERVE NATIONAL PROGRAMS ON ENVIRONMENTAL QUALITY

Now is the time to use foreign currencies for urgent field studies of the processes of change in man's natural environment and in his culture. The impact of technology on rural and urban communities, the poisoning of man's environment and the destruction of nature's productive mechanisms in the face of exploding human populations, are all problems of direct interest to the Smithsonian. Unrest in urban centers and among young people the world over attest to our poor understanding of these processes. Although the Smithsonian adheres to its traditional role as an institution for basic, not applied, research, its traditional biological and anthropological interests are basic to an understanding of these immediate national and world problems.

"Excess" foreign currencies represent a substantial national resource which should be fully utilized to support studies of environmental quality like the following on-going projects:

... International Biological Program/Smithsonian studies in Tunisia of the continuing encroachment of the Sahara in the face of concerted conservation programs.

... Yale University/Smithsonian field research in the Gir Forest in Northwest India where agricultural pressures threaten destruction of the forest which is the last habitat of the Asiatic lion, which once roamed the region from the Mediterranean to the South China Sea.

... Union College, New York, research into the deterioration of fresh water lakes in the Nile River delta as a result of the regulation of the river's flow by the Aswan Dam. The lakes have provided fish and employment for fishing communities for centuries.

... Smithsonian studies, together with Israeli scientists, of the movement of marine organisms through the man-made, sea-level Suez Canal. Results show that the majority of commercially valuable fish taken in the Eastern Mediterranean originated in the Red Sea. These studies have saved the United States thousands of hard research dollars because they provide a tested model for studies to be conducted in connection with a possible sea-level canal at Panama.

... University of Georgia studies of the tropical forests, grasslands, and cultivated lands in the Ganges river valley in India.

... Smithsonian studies of migrating birds and the parasites associated with these migrating birds, in Northeast Africa, which have shown that they carry viruses and antibodies and thus can be considered potential carriers of human diseases.

On-going studies of cultural change supported by the Smithsonian Foreign Currency Program include:

... Duke University, Durham, North Carolina, studies of the effects of city life in New Delhi, India, on in-migrating minorities.

... University of Pennsylvania studies of the effects of urbanization on family life in India.

... University of Illinois studies of the effects of migration on basic cultural expression, specifically the traditional songs of communities of Jews migrating to Israel.

... University of Washington studies of the effects of spreading technology and urbanization on one of Ceylon's oldest ethnic groups.

... Center for the Study of Man, National Museum of Natural History, urgent anthropological studies of cultures changing rapidly or disappearing under the impact of modern technology.

Such studies by American scholars of man's behavior are best conducted abroad because, as a rule, the best observers of a living culture are those drawn from a different culture.

RESEARCH WHICH MUST BE POSTPONED

New research into the nature of the environment long in preparation which must be postponed because of insufficient funds in the Smithsonian Fiscal Year 1970 appropriation include:

... International Decade of Oceanography studies conducted aboard the Smithsonian research vessel PHYKOS by scientists from major American oceanographic research institutions as a part of the approved United States national contribution to the Cooperative Investigations of the Mediterranean of the Intergovernmental Oceanographic Commission.

... Dartmouth College studies of organic production in Kashmir lakes, a joint U.S.-Indian project, which is a part of the International Biological Program's world-wide inventory of natural productivity.

... Duke University studies of the systematics of lichens in Morocco. The first of a series of projects to study in a comprehensive manner the flora of this new "excess" currency country.

... Oak Ridge National Laboratory studies of deciduous forest and grassland ecosystems in Poland which will supplement similar studies under Oak Ridge's direction under the United States national plan for the International Biological Program.

... University of Texas archeological studies of the classical city of Stobi in Macedonia, Yugoslavia which will seek to reconstruct the history, social organization and the natural environment of this ancient city over the full span of its existence.

Other studies which must be postponed for lack of sufficient funds include:

... American Schools of Oriental Research excavations at Kirbet Shema, Israel which will apply to the Greek, Roman and Byzantine periods of the archeology of Palestine the highly refined techniques pioneered in the study of earlier periods in that country.

... Smithsonian Astrophysical Observatory studies of the Earth's upper atmosphere and magnetic field by means of newly-developed laser tracking techniques at the Uttar Pradesh State Observatory in India, of man-made satellites.

ACCOMPLISHMENTS

Smithsonian Foreign Currency Program grants have benefitted more than 200 United States institutions in over 25 states. Accomplishments include:

... More than 43 research publications. Recent publications include the first systematic study of marine organisms sorted and distributed by the Smithsonian's Mediterranean Marine Sorting Center in Tunisia and an ecological analysis of the climate and vegetation of Ceylon growing out of the studies of the Ceylonese elephant undertaken by the National Zoological Park.

... More than 150 post-doctoral research opportunities for Americans.

... More than 110 training opportunities for American Ph. D candidates, who obtained essential field experience, frequently obtaining course credit, and more often accomplishing the independent research for doctoral dissertations. Especially noteworthy for the training of students have been Hebrew Union College, Cincinnati, Ohio in its summer seminar at the excavation of the biblical city

of Gezer in Israel; New York University's Institute of Fine Arts in the course of excavations of the ancient Egyptian city of Mendes in the Nile River delta; and the American Institute of Indian Studies (a consortium of 23 American universities), whose junior fellows conduct research in India toward their doctor's degrees with Smithsonian support. Most research projects include at least one American and one host country senior research scholar and one American and one host-country graduate student.

... Additions to research collections of the National Museum of Natural History and of other grantee institutions in the form of archeological, ethnographic and biological specimens collected and shared with the collaborating institutions in the "excess" foreign currency country. For example, Yale University's Peabody Museum and the Museum of the University of Colorado have benefitted from additions to their paleontological collections growing out of expeditions in Egypt and Tunisia respectively. The Yale expedition is making substantial contributions to our understanding of man's evolution; the Colorado expedition has uncovered important information about the environment of early man and the geological history of northwest Africa.

GROWING RESEARCH OPPORTUNITIES

Opportunities continue to grow to employ foreign currencies. In June 1969 an amendment was signed to the principles of cooperation between the Smithsonian and the Government of Yugoslavia permitting collaboration in ecological research there. Moreover, recent political developments in Eastern Europe have added to the program's authority opening up a range of "excess" currency uses covered by the National Museum Act of 1966.

Moreover, the change in government in Pakistan has brought increased interest in collaboration in basic research under the Smithsonian program. A University of Washington proposal to study the wild boar of Pakistan and a Smithsonian proposal to study the marine fauna of the continental shelf of West Pakistan are currently under consideration by the Government of Pakistan as pilot projects for a potentially extensive program. In India, the Smithsonian joined with the long-established American Institute of Indian Studies to provide facilitative services to American institutions in the development of projects there.

Direct dollar costs to the Smithsonian for its Foreign Currency Program are limited to those for administrative personnel in Washington. During Fiscal Year 1970, six people were employed by the Office of International Activities for this purpose at a total cost of about \$87,000. The administrative burden has grown by some forty grants, for each of the last two years, without any increase in personnel. The increase in activity has been made possible by the simplification of procedures and the introduction of labor-saving equipment.

This Special Foreign Currency Program request, as in the past, is based on budget projections for on-going research and on pending and new research proposals which include firm research proposals, postponed due to lack of sufficient funds, and other sample or illustrative proposals based on firm indications of interest both within and without the Smithsonian. They represent the Institution's selection of possible projects which appear most promising for successful development and implementation during Fiscal Year 1971. It should be noted, however, that actual implementation of these projects will be contingent upon three factors: review by the Smithsonian's national scientific advisory councils, review and approval by American embassies overseas, and appropriate cooperative arrangements with host-country institutions or Governmental authorities.

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

1. Archeology and Related Disciplines

A. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
1. American Institute of Indian Studies (a non-profit organization of 24 American colleges and universities	For continued support of the Center for Art and Archeology (formerly the American Academy of Benares), a research center for South Asian archeology and art history.	1971est.	100,000
		1970	150,000
		1969	147,000
		1968	144,753
		1967	130,778
		1966	76,850
2. American Research Center in Egypt (a nonprofit study center supported by ten American universities)	To continue support of the Center's research and excavation program in the archeology of Egypt, which includes Pharaonic, Hellenistic, Roman, and early Christian sites.	1971est.	50,000
		1970est.	150,000
		1969	150,000
		1968	258,728
		1967	177,137
		1966	259,200
3. Jerusalem School of Archeology of the Hebrew Union College	To continue the survey and exploration of some 400 archeological sites in the Negev and to conduct seminars in biblical archeology for American graduate students in archeology.	1971est.	50,000
		1970est.	174,000
		1969	68,500
		1968	134,250
		1967	165,750
		1966	150,000
4. Peabody Museum of Yale University	To continue the paleontology and stratigraphy studies of the Paleocene, Eocene, and Oligocene deposits of Egypt, which have resulted in important discoveries relating to human evolution.	1971est.	20,000
		1970est.	30,000
		1969	30,000
		1967	31,396
		1966	19,310
5. University Museum, University of Pennsylvania	To study remaining stones of the Temple of Akhnaten at Luxor, Egypt.	1971est.	20,000
		1970	67,000
		1969	60,000
		1968	9,730
		1967	65,070
6. University of Arizona and Museum of Anthropology, University of Michigan	To support a program for research and training in prehistoric archeology through field excavations on Mt. Carmel in Israel.	1971est.	30,000
		1970	56,000
		1969	50,000
		1968	47,660
		1967	50,000

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
7. Carnegie Museum	To continue the excavation of a Philistine City at Ashdod, Israel.	1971est.	10,000
		1970	31,000
		1969	50,000
		1968	56,180
		1967	47,180
		1966	50,000
8. Lawrence Radiation Lab. University of California, Berkeley	To continue testing the utilization of cosmic rays to "x-ray" the Egyptian pyramids in search of presently unknown chambers.	1971est.	10,000
		1969	32,000
		1967	21,680
		1966	23,320
9. University of Missouri	To excavate at Tell Anafa, Israel, to understand better the nature of Greek trade with Palestine and Egypt in the period after 800 B.C.	1971est.	25,000
		1970est.	35,000
		1969	40,000
		1968	60,500
10. University of Minnesota	To continue a program of research in Yugoslavia with excavations of the unique Roman Palace of Diocletian at Split, Yugoslavia.	1971est.	40,000
		1970	80,000
		1969	27,000
		1968	32,505
11. Smithsonian Institution Office of Anthropology	To study disappearing metal-working crafts of Pakistan and Ceylon as part of a worldwide study of ancient technologies and their development.	1971est.	30,000
		1970	58,000
		1969	43,700
		1968	21,128
12. Brooklyn Museum	To construct scale models of Egyptian monuments and archeological sites for study.	1971est.	8,000
		1970	18,000
		1967	4,222
13. Institute for Advanced Study, Princeton	To conduct interdisciplinary research and excavations in Bronze and early Iron Ages of Northern Yugoslavia.	1971est.	10,000
		1970	14,600
		1969	8,000
		1968	9,496
		1967	2,030
14. University of Chicago	To provide research assistantships for graduate credit in South Asian art at the American Academy of Benares, India, an affiliate of the American Institute of Indian Studies.	1971est.	10,000
		1970	10,000
		1969	10,000
		1967	11,400
15. University of Chicago	To examine a Vaisnava Religious community in West Bengal historically and sociologically. (Funds available in 1967, awaiting Government of India approval)	1971est.	15,000

<u>Recipient</u>	<u>Project</u>	<u>Grant in U. S. Dollars</u>	<u>Expressed</u>
16. American University in Cairo	To study the distinctive domed Mausolea of the Mamluk era (1250-1517 A. D.) in Cairo which have not been studied and are threatened by growth and modernization of Cairo.	1971est. 1969 1968	10,000 9,700 6,340
17. Dumbarton Oaks (Harvard) Center of Byzantine Studies; American Academy in Rome	To continue studies of the unique but rapidly disintegrating Roman and Byzantine mosaics at historic Utica, Tunisia.	1971est. 1970 1969	30,000 62,000 28,628
18. Smithsonian Institution Center for the Study of Man	To continue development of urgent anthropological research in the ex- cess countries as a part of the Re- search Program in Changing Cultures of the newly established Center for the Study of Man.	1971est. 1970est. 1969	15,000 20,000 20,000
19. University of Washington	To continue studies of the relation- ship between social structure and economic organization in the Vedda Communities of Ceylon.	1971est. 1970est. 1969 1968	15,000 20,000 19,000 16,000
20. University of Illinois	To continue comparative studies of the effects of cultural change on folk music in Israel and Tunisia.	1971est. 1970	22,000 31,500
21. Denison University	To continue the exchanges of materials on Ancient Burmese art with Burmese museums.	1971est. 1970est. 1969	2,000 2,000 5,000
22. American Institute of Indian Studies	To continue support for post- doctoral research in social and cultural anthropology and lin- guistics of India and Ceylon and to support the Institute's center in Poona, India as an American research center abroad serving American scholars in all fields.	1971est. 1970 1969	90,000 201,000 148,000
23. American Schools of Oriental Research, Boston, Mass. (a consortium of 5 United States institu- tions of higher learning	To continue support for two archeo- logical excavations at Tell el Hesi and Kirbet Shema embracing biblical, Greek, Roman and Byzantine periods.	1971est. 1970est. 1969	50,000 100,000 50,000

<u>Recipient</u>	<u>Project</u>	<u>Grant</u>	<u>Expressed</u>	<u>in U. S. Dollars</u>
24. University of Michigan	To continue excavations of the earliest Neolithic settlements in Poland.	1971est. 1969	20,000 37,000	
25. Denison University	To continue excavations at Sirmium a Roman provincial capital along the fortifications erected against the "barbarous!"	1971est. 1970est. 1969 1968	30,000 60,000 3,000 34,000	
26. Brooklyn College of the University of the City of New York	To continue reevaluation of the landmark excavations at the prehistoric site of Starcevo, Yugoslavia, apply modern ecological techniques to a site originally excavated in the early 1930's.	1971est. 1970	10,000 10,000	
27. Office of Anthropology Smithsonian Institution	To continue to study the impact on the culture of Palestine of the Phoenician, Cypriot, Egyptian and Arabian cultures from the Middle Bronze age through the Persian period through excavations at Tell Jemmeh in Southern Israel.	1971est. 1970	30,000 66,500	
28. University Museum University of Pennsylvania	To continue study of Dra Abul El Naga tomb inscriptions, Egypt.	1971est. 1970est. 1969	20,000 17,000 17,300	
29. Douglass College Rutgers University	To continue excavations of the early Greek and Roman settlements at Salona in Yugoslavia.	1971est. 1970 1969	40,000 40,000 20,300	
30. University of California Los Angeles	To continue excavations of an early neolithic settlement at Anzibegovo Macedonia, Yugoslavia considered a cross road for formative cultures of western civilization.	1971est. 1969	80,000 80,000	
31. University of Minnesota	To continue studies of climate influences on man's shift from nomadic to settled life in the Middle East through studies of fossil evidence of evolving flora and fauna.	1971est. 1969	7,000 7,700	

Subtotal Estimate for On-going Research

899,000

B. Pending Research Proposals

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. University Museum University of Pennsylvania	To excavate the protohistoric of Kantarodai Ceylon to determine the nature and chronology of settlement and relations with south India.	1971est.	40,000
2. Smithsonian Institution Office of Anthropology	To study the rapidly disappearing crafts at village level in India.	1971est.	50,000
3. American Institute of Indian Studies, Center for Art and Archeology	To survey and initiate excavation of Cultural Sites of the Pratihara period especially at Bhinmal in Rajasthan, India.	1971est.	30,000
4. Smithsonian Institution Museum of Natural History	To survey and document the art history of Tibet on the basis of objects currently being brought to India and Nepal by Tibetan refugees.	1971est.	20,000
5. New York University Columbia University University of Michigan	To excavate ancient Utica, Tunisia employing interdisciplinary techniques designed to describe fully the mode of life and environment characteristic of successive cultures inhabiting the site.	1971est.	30,000
6. American Museum of Natural History	To initiate archeological excavations together with the Archeological Survey of India with special provision for the training of Americans in the archeology of South Asia, today an area largely neglected by U. S. scholarship.	1971est.	30,000
7. Smithsonian Institution Office of Anthropology	To initiate systematic collections of Indian folk art which is disappearing as village crafts yield to urban technology.	1971est.	26,000
8. University of California Los Angeles	To excavate Islamic archeological sites in West Pakistan.	1971est.	30,000
9. Brandeis University	To survey western Phoenician archeological sites in Morocco.	1971est.	15,000
10. University of Michigan	To conduct research and excavations into the Middle Paleolithic of Northern Bosnia.	1970est.	20,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
11. Institute for Advanced Studies, Stanford University	To conduct investigations in the archeology of historical India.	1970est.	20,000
12. Columbia University; University of Pennsylvania	To conduct ethno-historical research into the history of Traits of traditional life in Modern India.	1970est.	20,000
13. University of Washington	To conduct investigations into the chalcolithic and early civilization of India.	1970est.	40,000
14. Southern Illinois University	To study the impact of rural road construction on social, cultural and economic change in Yugoslavia.	1971est.	28,000
15. University of Michigan	To document photographically the architecture, sculpture and paintings of the Bhuddists, Hindus and Jains during India's 'Golden Age' from the fifth to the eight century A. D.	1971est.	16,000
16. University of Wisconsin.	To study Indian religious experiences and attitudes expressed through the structure of Hindu rites of death.	1971est.	12,000
<u>Subtotal Estimate for Pending Research</u>			327,000

C. New Projects

1. Pennsylvania State University	To explore the significance to ancient Egyptian societies of the stars in the alignment of the temples at Luxor in Egypt through application of new techniques of aerial photography and computer calculation of the positions of stars in ancient times.	1971est.	13,000
2. University of Texas	To excavate the classical site of Stobi in Macedonia, Yugoslavia which lies at the confluence of Greek, Roman and ancient Balkan cultures.	1971est.	31,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
3. Dumbarton Oaks Harvard University	To excavate the Byzantine provincial capital of Bargala in Macedonia which lies at the confluence of Greek, Roman and ancient Balkan cultures in a study supplementary to excavations at Stobi and at Anzibegovo covering earlier periods.	1971est. 30,000
4. University of Hawaii	To initiate prehistoric archeological excavations in the northeastern India.	1971est. 30,000
5. Washington State University	To excavate a prehistoric flint mining complex work of the Kanienkm River in Poland.	1971est. 25,000
6. Washington State University	To study pre-mesolithic fossils in Poland.	1971est. 10,000
7. American Museum of Natural History, New York	To conduct museum studies in Egypt of unpublished materials from Egyptian tombs of the Middle Kingdom.	1971est. 20,000
8. University of Nevada	To excavate the prehistoric site of Kausambi in northern India.	1971est. 30,000
9. University of Washington	To study the relations of fishing boat crew members and how they relate to conflict groups in a peasant fishing town in Yugoslavia.	
10. Ohio State University	To excavate the Yugoslav city of Naissus which has an uninterrupted history from the early Neolithic period to the late Middle Ages reaching its peak in the Roman period.	1971est. 35,000
11. University of Washington	To study the historical and religious documents of Tibet brought to India by the exiled Dalai Lama.	1971est. 30,000
12. Office of Anthropology Smithsonian Institution	To study the physical anthropology of prehistoric peoples in conjunction with archeological excavations of the Polish Academy of Sciences.	1971est. 20,000
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<u>Subtotal Estimate for New Research</u>		274,000
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<u>Total Archeology and Related Disciplines</u>		1,500,000
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II. Systematic and Environmental BiologyA. On-going Projects

<u>Recipient</u>	<u>Projects</u>	<u>Grant Expressed in U. S. Dollars</u>	
1. University of Georgia	To study the flow of energy through small rodent populations in different habitats in conjunction with the Ecological Institute of Poland.	1971est.	20,000
		1970est.	20,000
2. Smithsonian Institution Office of Environmental Studies, Oceanography and Limnology Program	To study marine organisms of the Red Sea and Eastern Mediterranean in order to determine what biological interchange of species has occurred through the Suez Canal.	1971est.	100,000
		1970est.	100,000
		1969	100,000
		1967	122,000
3. Smithsonian Institution Office of Environmental Studies, Oceanography and Limnology Program	To accelerate the processing of marine organisms from the Mediterranean through the sorting facility known as the Mediterranean Marine Sorting Center operated in cooperation with the Tunisian Institute of Oceanography and Fisheries.	1971est.	100,000
		1970est.	100,000
		1969	100,000
		1967	152,360
4. University of Colorado	To continue to excavate a paleontological site in the Miocene-Pliocene formations of South Central Tunisia to attempt to establish a chronology for fossil mammals in Tunisia which may help to determine geological relationships with similar European formations.	1971est.	25,000
		1970est.	25,000
		1969	23,000
		1968	23,165

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
5. Smithsonian Institution Division of Birds	To continue investigations on the ecology of Palearctic birds migrating through northeastern Africa, including cooperative research on serology with the Rockefeller Virus Laboratory and ectoparasites with the Naval Medical Research Unit III in Egypt.	1971est.	30,000
		1970est.	50,000
		1969	41,000
		1968	21,517
		1967	44,083
6. University of Michigan	To continue taxonomic studies of Indian mollusks through caryotype analysis and the cytogenetics of closely related species which will contribute to medical, public health, and veterinary programs.	1971est.	15,000
		1970est.	15,000
		1969	16,000
		1968	21,394
7. Smithsonian Institution National Zoological Park	To continue studies of the evolution and behavior of related primates (Cercopithecidae) in different environments in Ceylon.	1971est.	30,000
		1970	38,000
		1969	21,000
		1968	45,749
8. Smithsonian Institution National Zoological Park	To continue studies of the relation of man and elephant in Ceylon where the domesticated beast of burden is captured and trained to work with man after reaching maturity as a wild elephant, rather, than after domestication as a young animal.	1971est.	10,000
		1970	10,000
		1969	10,000
		1968	4,371
9. State University of New York at Stony Brook	To continue theoretical ecological studies of a living coral reef and the organisms related to it in Israel.	1971est.	20,000
		1970est.	20,000
		1969	20,000
		1968	12,036
10. Smithsonian Institution Department of Botany	To continue revision of the basic <u>Trimen's Flora of Ceylon</u> in the light of modern botanical knowledge and techniques.	1971est.	30,000
		1970est.	30,000
		1969	30,000
		1968	39,400
11. Smithsonian Institution Radiation Biology Lab.	To continue studies of solar radiation station in Israel to obtain data for comparison with base line studies conducted in Washington, D. C.	1971est.	80,000
		1970est.	80,000
		1969	84,000
		1967	110,000
12. Smithsonian Institution Office of Oceanography and Limnology Program	To continue studies of the benthic and planktonic biology of the Adriatic Sea in Yugoslavia.	1971est.	35,000
		1970est.	35,000

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
13. Smithsonian Institution: National Zoological Park and Museum of Natural History	To provide additional grants to Smithsonian scientists for in- creasing the national entomo- logical, botanical and zoological collections by expeditions to India, Ceylon, Egypt, Pakistan, Tunisia and Morocco.	1971est.	25,000
		1970est.	25,000
14. Smithsonian Institution Department of Vertebrate Zoology	To continue studies, of South Asian birds and the preparation of a handbook.	1971est.	5,000
		1970	5,000
		1969	5,000
		1968	5,000
15. Dartmouth College	To continue studies of organic production in fresh water lakes in Kashmir, India.	1971est.	40,000
		1970est.	47,000
16. University of Miami, Florida	To continue studies in Ceylon of Carangid fishes which constitute one of the major sources of man's food around the world.	1971est.	15,000
		1970est.	15,000
		1969	25,000
17. State University of New York, Stony Brook	To continue studies of the ecology of snails in Israel.	1971est.	10,000
		1970est.	20,000
		1969	20,000
18. University of Missouri	To continue studies of the behavior and ecology of gazelles in Israel.	1971est.	35,000
		1970	45,000
19. Library, Smithsonian Institution	To continue accelerated translation and publication of reference works and monographs.	1971est.	50,000
		1970	25,000
20. Department of Invertebrate Zoology Smithsonian Institution	To continue ecological studies of sponge fisheries of Tunisia.	1971est.	10,000
		1970est.	10,000
		1967	4,600
21. Office of Vertebrate Zoology, National Museum of Natural History, Smithsonian Institution	To continue to study the geographic distribution and the ecology of the mammals of Morocco.	1971est.	40,000
		1970	63,000
22. Program of Ocean- ography and Limnology Smithsonian Institution	To continue a survey of Marine algae, fauna and sediments of the continental shelf of Morocco.	1971est.	25,000
		1970	25,000
23. Smithsonian Institution Department of Entomology	To study the Biosystematics of the in- sects of Ceylon as a part of the model program of ecological studies of that tropical island.	1971est.	20,000
		1970	28,000

Subtotal, Estimate for On-going Research

770,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
B. Pending Projects			
1. Smithsonian Institution Department of Botany	To initiate flora and vegetation studies of a district of Mysore State in the Ghat Mountains of Southwest India and to prepare collections for the Smithsonian's National Herbarium.	1971est.	20,000
		1970est.	20,000
2. University of Georgia	To initiate studies of the interaction of human and small rodent populations in a variety of temperate zone environments in conjunction with the Ecological Institute of the Polish Academy of Sciences.	1971est.	25,000
		1970est.	25,000
3. California Academy of Sciences	To initiate field investigations of the habitats of Indian amphibians and reptiles especially in the fast disappearing virgin environments of that country.	1971est.	25,000
		1970est.	25,000
4. Duke University	To initiate taxonomic studies in Yugoslavia of the Adriatic isopod and to prepare a handbook for the study around the world of this marine organism.	1971est.	20,000
		1970est.	20,000
5. Smithsonian Institution Office of Environmental Studies	To initiate studies of the behavior of elephants and primates in India coordinated with base line studies conducted in Ceylon.	1970est	50,000
6. Union College, Schenectady, N. Y.	To collect and study the plankton communities of the Nile River Delta with special reference to the changes in salinity and circulation caused by interruption of seasonal river fluctuation by the Aswan Dam.	1970est.	70,000
7. Duke University	To conduct field studies in plant taxonomy and ecology in the state of Assam, India.	1971est.	30,000
8. University of California at Davis	To study the taxonomy and distribution of the poorly known microscopic marine fauna of the Bay of Bengal on the basis of collections of marine sediments from the coastal region of East Pakistan.	1971est.	20,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
9. Smithsonian Institution Office of Environmental Studies	To study the ecology and behavior of hooved animals in a teak forest in India.	1971est.	20,000
10. Southern Methodist University	To undertake a definitive study of Quaternary age deposits on the floor and lower slopes of the Qattara Depression in the western Desert of Egypt.	1971est.	25,000
11. Smithsonian Institution, Program of Oceanography and Limnology	To collect and conduct taxonomic studies of the marine fauna of West Pakistan's continental shelf.	1971est. 1970est.	50,000 70,000
12. University of Michigan	To study productivity of tropical lakes in Southern India.	1971est. 1970est.	21,000 31,000
13. Gulf Coast Marine Lab., Mississippi, and Division of Fishes, National Museum of Natural History, Smithsonian Institution	To conduct systematic and behavioral studies of flatfishes and gobioid fishes in collaboration with the Zoological Survey of India	1971est. 1970est.	25,000 23,300
14. American University in Cairo	To study in Egypt the migration of marine biota between the Red Sea and the Mediterranean through the Suez Canal.	1971est.	20,000
15. Smithsonian Institution Office of Environmental Studies	To conduct studies of the pattern and behavior of birds during migration in the Himalayan Mountains of Northern India and Nepal.	1971est.	20,000
16. Smithsonian Institution Division of Invertebrate Paleontology	To study in India the broadly distributed fossil ostracod which reveals through its varied physical appearance much about the climate and geography of the geologic era in which it lived.	1971est.	25,000
17. University of Michigan	To study the snail, carrier of the disease, bilharzia, in the newly formed reservoirs and canals associated with the Aswan dam in Egypt.	1971est.	20,000
18. University of Utah	To collect the may flies of Pakistan for taxonomic studies as a part of specialized world wide studies of this species.	1971est.	10,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S Dollars</u>	
19. Smithsonian Institution Office of Environmental Studies	To investigate the plant ecology of the Laccadive Islands of India in cooperation with the Botanical Survey of India and to obtain a duplicate set of specimens for the research collections of the U. S. National Museum.	1971est.	30,000
20. Smithsonian Institution Office of Environmental Studies	To collect for the U. S. National Museum and study the flora of the long neglected areas of India particularly the Malabar and the Karomandel Coasts, and the Nilghiri and Khasia Hills--areas which served as sources of materials for classic botanical studies made as long ago as the 17th Century and badly in need of revision.	1971est.	40,000
21. University of Washington	To conduct pilot studies of the behavior and ecology of the wild boar in West Pakistan--a little studied animal which is nevertheless considered a significant agricultural pest.	1971est.	30,000
22. University of Georgia	To study organic productivity and nutrient cycling in tropical ecosystems in collaboration with the Hindu University of Benares, India. This study has been proposed to the National Committees for the International Biological Program of both the United States and India.	1971est.	50,000
		1970est.	50,000
<u>Subtotal, Estimate for Pending Research</u>			526,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
C. New Projects		
1. University of California Berkeley	To initiate a comprehensive program of the study of the flora of Morocco with bio-systematic studies of flowering plants.	1971est. 3,000
2. Duke University Durham North Carolina	To conduct studies for the classification of Moroccan lichens with special emphasis on their chemical characteristics.	1971est. 3,000
3. California Institute of Technology	To study the microbiology of the desert soils of Morocco.	1971est. 10,000
4. University of Illinois	To compare structure and function in New World bird communities with those in India.	1971est. 10,000
5. Ohio University	To study the pollution condition of Lake Tunis in Tunisia.	1971est. 25,000
6. University of Michigan	To study the effects of inbreeding in mammals in collaboration with the Cancer Research Institute in India.	1971est. 22,000
7. Queens College, University of the City of New York	To conduct museum studies of unique specimens of fossil mammals in Poland in connection with studies of evolution.	1971est. 5,000
8. Office of Environmental Studies, Oceanography and Limnology Program, Smithsonian Institution	International Decade of Ocean Exploration (IDOE), cooperative investigations of the Mediterranean aboard the Smithsonian research vessel PHYKOS as follows:	1971est. 230,000
--University of Southern California	Dredging, coring and bottom grab sampling in studies of microscopic sea life and fossils of such life.	
--National Museum of Natural History, Smithsonian Institution	Deep sea dredging to study recent changes in the geography of biological regions through study of the changing conformation of the highly adaptable animal, the ostracod.	

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
-- Duke University Durham, North Carolina	Bi-monthly cruises to collect samples for the study of the devel- opment, distribution and biology of crab larvae.	
-- Washington State University	Biological sampling for studies of the paleontology of Pteropods.	
-- University of North Carolina	Isolation and study of pure cultures of marine fungi.	
-- National Museum of Natural History Smithsonian Institution	Plankton tows for studies of planktonic foraminifera.	
-- Florida State University	Sampling for studies of deep sea biology and geology.	
-- University of Delaware	Towing multiple plankton samplers to study the verticle distribution of the cosomatosus pteropods in relation to water masses.	
-- University of California	Sampling deeper than 200 meters to study the systematics and distribution of marine mites.	
-- Division of Fishes National Museum of Natural History Smithsonian	Long line fishing for several hundred specimens for a study of the distribution of the common sharksucker.	
-- University of North Carolina	Trawling, gill net, and long line collection of samples for systematic and distribution studies of sharks and their relatives.	
-- Department of Invertebrate Zoology, Smithsonian Institution	Mid-water trawling for studies of the systematics, distribution and ecology of pelagic Cephalopods.	
-- Department of Paleobiology Smithsonian Institution	Dredging, coring and bottom photography to study the morphology of sediments and sub-bottom.	

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
--Massachusetts Institute of Technology	Deep lowerings of coring and grab sampling equipment for study of the deepest Mediterranean geological structures.	
--Woods Hole Oceanographic Institution, Massachusetts	Submersible dives to explore the water transport over the Scarpanta sill in the Eastern Mediterranean.	
9. Office of Environmental Studies, Oceanography and Limnology Program Smithsonian Institution	To initiate study of the existing ecosystem of the Eastern Arabian Sea through oceanographic cruises undertaken in cooperation with the Indian National Institute of Oceanography.	1971est. 140,000
10. Office of Environmental Studies, Oceanography and Limnology Program Smithsonian Institution	To initiate a multi-year program of study of the ecology of coral reefs in India.	1971est. 56,000
<u>Subtotal, Estimate for New Research</u>		504,000
<u>Total, Systematic and Environmental Biology</u>		1,800,000

III. International Biological Program (IBP)

A. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>
1. National Academy of Sciences - U.S. National Committee to the International Biological Program	To continue direct support to the U. S. National Committee to the International Biological Program for planning symposia, training of U. S. scientists and research program development.	1971est. 25,000 1970 25,000 1968 10,000
2. National Academy of Sciences - U.S. National Committee to the IBP	To continue development of joint U. S. -Indian research projects which strengthen the research of United States institutions and contribute to the priority objectives of the U. S. I. B. P. .	1971est. 25,000 1970est. 25,000 1969 25,000

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
3. Office of Environmental Sciences, Smithsonian Institution	To continue ecological studies of the last surviving population of the Asiatic lion in the Gir Forest in India and to recommend techniques for conservation of the animal and his habitat.	1971est.	20,000
4. Yale University New Haven, Conn.	To continue to study habitat relationships, numbers and distribution of wild antelope, deer, boar and other hooved animals in the Gir Forest India as part of a broad study of this tropical forest which includes study of the Asiatic lion.	1971est. 1970	50,000 35,000
B. Pending Projects			
1. Office of Environmental Studies, Smithsonian Institution	To contribute to American ecological studies of Mediterranean and Saharan environments in a multi-national project initiated by the International Biological Program's Terrestrial Conservation Section in Tunisia.	1971est. 1970est.	80,000 80,000
C. New Projects			
1. Oak Ridge National Laboratory Oak Ridge, Tenn.	To conduct cooperative research in Poland on temperate zone forest and grassland ecosystems supplementing studies conducted in the United States.	1971est.	25,000
2. Pennsylvania State University	To conduct comparative studies of human adaptability at high altitudes in India.	1971est.	100,000
3. University of Minnesota	To study biological rhythms in man and beast in India.	1971est.	50,000
4. Pennsylvania State University and the University of Minnesota	To study in South Asia the international spread of plant disease by means of airborne organisms.	1971est.	50,000
5. University of Utah	To conduct comparative studies in the arid climates of Egypt and India supplementing studies conducted in the United States.	1971est.	25,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
6. University of Texas	To conduct studies of convergent and divergent evolution in desert flora of Tunisia and India.	1971est. 50,000
	<u>Total International Biological Program</u>	<u>500,000</u>

IV. Museum ProgramsA. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
1. U. S. National Museum	To assist, under the U. S. National Museum Act, with museum expertise and support the program of the International Council of Museums (ICOM), a UNESCO affiliate, to develop teaching museums of science and technology in Asia and Africa. For example, the Smithsonian contributed in FY 1969 to studies resulting in recommendations to ICOM that there be established in India a laboratory for basic exhibits in science and technology where teaching exhibits will be built for circulation in industrializing countries. The experiment will provide opportunities to American Museum Specialists to observe the effectiveness of exhibits in teaching basic science and technology to people of all cultural backgrounds.	1971est. 55,000 1970 25,000 1969 20,000

B. Pending Projects

1. National Collection of Fine Arts and Smithsonian Traveling Exhibition Service	To prepare an exhibit catalogue, to be the first scholarly publication on a unique collection at Benares Hindu University, of miniature paintings of the Moghul period of Indian art for distribution through American museums exhibiting such art treasures, for the first time, in the United States.	1971est. 5,000
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C. New Projects

<u>Recipient</u>	<u>Projects</u>	<u>Estimated Request in U. S. Dollar</u>
1. United States National Museum	To support the participation of stone and wood conservation specialists from India and Poland in the symposium on this subject to be sponsored by the Interna- tional Institute for Conservation of Historic and Artistic Works (IIC).	197lest. 10,000
2. American Association of Museums and the United States National Museum	To initiate a program of professional 197lest. 30,000 training for museum curators and technicians in collaboration with museums of India, Pakistan, Tunisia and Egypt through two-way exchanges of personnel for on-the-job training. Participants would be expected to serve at least six months in a museum housing collections of direct importance to their pro- fessional development.	
<u>Total Museum Programs</u>		100,000

V. AstrophysicsA. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>		
1. Smithsonian Astrophysical Observatory, Cambridge, Mass.	To continue balloon experiments in cooperation with the Tata Institute of Fundamental Research, Bombay, India on gamma radiation reaching the earth's upper atmosphere from outer-space at the magnetic equator.	1971est.	42,000	
		1970est.	42,000	
		1969	4,000	
		1968	29,000	
2. Hunter College of the City University of New York and Smithsonian Astro- physical Observatory	To continue computer analysis in Israel of the application of principles of plasma physics concerning the movement of particles at extremely high speeds to the movement of celestial bodies in galaxies--a study of the collective behavior of self-gravitating systems.	1971est.	15,000	
		1970	14,000	
		1968	41,800	
3. Smithsonian Astro- physical Observatory	To continue studies in Israel comparing theories developed separately of the nature of the interior and of the exterior of evolving stars.	1971est.	13,000	
		1970	28,000	
		1969	27,300	
4. Smithsonian Institution Office of the Secretary	To assist in studies sponsored by newly created Center for Short-Lived Phenomena, a clearing house for the receipt and dissemination of information concerning rare or infrequent natural events that might otherwise go unobserved or uninvestigated, such as remote volcanic eruptions, the birth of new islands the fall of meteorites and large fire balls and sudden changes in biological and ecological systems.	1971est.	24,000	
		1969	9,540	

Subtotal, On-going Research

94,000

B. Pending Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. Smithsonian Astro- physical Observatory	To record and analyze together, with data from around the world, at the Uttar Pradesh State Observatory, India, film exposures of suspected flare stars, a relatively newly discovered class of variable stars, with radio and optical energies several orders of magnitude higher than emissions from the largest solar flares.	1971est.	6,000
		1970est.	10,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
2. Harvard University	To initiate a collaborative program with the Indian Institute of Science leading to a publication on the historical, mathematical and theoretical foundations of the theory of radiation gas dynamics.	1971est. 9,100
3. Harvard University and the Smithsonian Astrophysical Observatory	To select, translate, and publish the key works of the distinguished Polish Copernican scholar, L. A. Birkenmajer, in collaboration with the International Astronomical Union. The publication will make available, for the first time to large segments of American and other English speaking scholarly communities, invaluable analyses of the astronomy of Copernicus.	1971est. 12,000
4. Harvard University and Smithsonian Astrophysical Observatory	To conduct laboratory studies in India of the spectra of hybrids and oxides in the visible and vacuum ultra violet region.	1971est. 29,000
5. Smithsonian Astrophysical Observatory, Cambridge, Mass.	To investigate solar radiation pressure perturbations upon the Passive Geodetic Earth-Orbiting satellite (PAGEOS) in collaboration with the University of Warsaw and the Polish Academy of Sciences.	1971est. 45,000
6. Harvard University	To conduct laboratory studies of the excitation processes in stellar, planetary and cometary atmospheres.	1971est. 41,700
7. Smithsonian Astrophysical Observatory	To measure air glow and ionospheric characteristics at the magnetic equator in studies contributing to the understanding of the nature of the upper atmosphere and of some of its effects on satellites.	1971est. 17,500
<u>Subtotal, Estimate for Pending Research</u>		160,300

C. New Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
1. Yale University and Smithsonian Astrophysical Observatory	To conduct research in theories of planetary motion in Egypt.	1971est. 40,000
2. Harvard University and Smithsonian Astrophysical Observatory	To conduct studies of thermal emission and absorption of the diatomic molecules in India.	1971est. 16,000
3. Dickinson College, Pennsylvania	To investigate the astronomical alignment of the Temples of Karnak, Egypt.	1971est. 13,000
4. Smithsonian Astrophysical Observatory and consortium of United States Astronomical Research Institutions	To conducted coordinated 24 hours observation of astronomical phenomena in collaboration with Israeli institutions employing telescopes in the western United States, Chile and Israel.	1971est. 154,700
--U.S. Naval Research Laboratory, Washington, D. C. and Massachusetts Institute of Technology	To conduct optical and photoelectric monitoring of X-ray sources.	
--California Institute of Technology	To conduct photoelectric monitoring of the continuum and line emission from quasi-stellar objects (QSO) and the nuclei of N-type galaxies.	
--Smithsonian Astrophysical Observatory	To conduct a high-dispersion abundance analysis of stars in the Pleiades.	
--State University of New York at Stony Brook	To determine the rate of star formation in young clusters.	
--Harvard College Observatory, Cambridge, Mass.	To conduct photometric observations of the High Balmer Lines (near the Balmer Limit) and the Balmer Continuum in Planetary Nebulas.	

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
5. University of New Hampshire	To conduct solar neutron experiments in India.	1971est. 30,000
6. Harvard University, Massachusetts Institute of Technology, Alaska Methodist University	To investigate the feasibility of astronomical programs with astronomers in India, United Arab Republic, and Poland.	1971est. 22,000
7. Harvard University and Smithsonian Astrophysical Observatory	To conduct in India spectrscopic studies of free radicals of astrophysical interest by the bombardment of accelerated charged particles.	1971est. 40,000
<u>Subtotal, Estimate for New Research</u>		315,700
<u>Total, Astrophysical</u>		<u>570,000</u>

VI. Program Development and Administration

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
1. Smithsonian Institution Office of International Activities	To defray costs of inspection and audit of field research sites and costs of negotiation with host governments on program operations--costs which increase in step with the increasing numbers of active grants.	1971est. 30,000 1970 20,000 1969 15,000 1968 10,000
<u>Total, Program Development and Administration</u>		<u>30,000</u>
<u>GRAND TOTAL</u>		<u>\$4,500,000</u>

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)Distribution of Funds by Country

Fiscal Years 1969, 1970, and 1971

<u>Country</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
India.....	\$ 490,066	\$ 520,000	\$ 1,140,000
Egypt.....	400,210	300,000	640,000
Israel.....	450,000	481,000	679,500
Morocco.....	25,000	50,000	150,500
Pakistan.....	34,380	75,000	150,000
Tunisia.....	225,000	155,000	250,000
Poland.....	100,000	100,000	200,000
Guinea.....	3,000	4,800	100,000
Burma.....	0	50,000	120,000
Yugoslavia.....	479,333	480,000	650,000
Ceylon.....	109,011	100,200	420,000
Total....	\$2,316,000	\$2,316,000	\$4,500,000

Senator BIBLE. Would you please develop that program?

Dr. RIPLEY. Yes, sir; I would be very happy to. We feel that the foreign currency program has been one of the most important developments at the Smithsonian. As you know, the Smithsonian has been the founding force in this country for archeology and certain aspects of biology. Because we have been granted by the Congress and by the U.S. Treasury an allotment of these foreign currency funds, we have been able to supplement the research activities abroad which universities and institutions in America presently would be virtually unable to do with the restrictions and the freeze in general of research funds.

We have benefited over 200 American institutions in 25 States from New England to California. I might add, Mr. Chairman, that Nevada, or more specifically the Desert Research Institute of the University of Nevada, has just joined the list. So with this number of universities already getting direct benefits, the word has been getting around that the Smithsonian foreign currency program is one of the best administered Public Law 480 programs, an opinion, incidentally, that is shared by our Bureau of the Budget colleagues who say that we provide the clearest picture of all on foreign currency projects.

RELATIONSHIPS WITH HOST COUNTRIES

It is the only truly bilateral Public Law 480 program which arranges for strong working relations with host country institutions.

If I could expand on that, I would like to point out that the Public Law 480 moneys in general administrated by Government agencies, unlike our own program, are directly handed to those countries' institutions and on a contract basis. Indian scientists or Pakistani scientists, for example, perform research for an American institution without any particular contact with Americans. But under the authorization which we obtained from the Congress, we have specifically encouraged the person-to-person and institution-to-institution approach which is otherwise practiced only by the foreign aid and Fulbright exchange programs. We have felt a particular pride in this as an example of contact between our specialists and specialists abroad.

PARTICIPATING STATES AND INSTITUTIONS

Senator BIBLE. Supply for the record the participation in the number of States you mentioned. How many States did you say?

Dr. RIPLEY. Twenty-five States at the present time and 200 institutions.

We would be very glad to supply that. We have a list of this. If we may say, it is a very strong and impressive list, sir.

Senator BIBLE. Supply it for the record.

(The information follows:)

(MUSEUM PROGRAMS AND RELATED RESEARCH)

AMERICAN UNIVERSITIES AND OTHER BASIC RESEARCH INSTITUTIONS, BY STATE,
RECEIVING FOREIGN CURRENCY GRANTS

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
ARIZONA				
1. Arizona, University of, Tucson	Cultural anthropology, India Prehistoric archaeology, Israel (2 years)	77,782 <u>76,480</u>		154,262
CALIFORNIA				
1. California, University of, Berkeley	Botany, Morocco	2,270	94,280	406,957
	Studies of the evolution of lizards, Yugoslavia	4,162		
	(Lawrence Radiation Laboratory)	X-raying pyramids, Egypt (3 years)	<u>87,848</u>	
2. California, University of, Los Angeles	Prehistoric archaeology, Yugoslavia - 2 projects		110,937 (2 yrs) <u>90,640 (2 yrs)</u>	201,577
3. Stanford University, Stanford	Salvage archeology, Yugoslavia (2 years)			<u>111,100</u>

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
COLORADO				
1. Colorado, University of, Boulder	Prehistoric archeology, Tunisia (2 years) Paleontology, Tunisia (2 years)	81,896 <u>113,310</u>	195,206	195,206
CONNECTICUT				
1. Yale University, New Haven	Mammal ecology, India	35,055	233,461	233,461
	Peabody Museum	Palaeontology, Egypt Paleontological investigations of ancestors of man, Egypt and India (2 projects)	19,310 47,694 (2 yrs) <u>131,402 (2 yrs)</u>	
FLORIDA				
1. Miami, University of, Institute of Marine Sciences, Miami	Taxonomy of fishes, Ceylon	24,800	26,750	
2. Florida, University of, Gainesville	Study of metofauna, Tunisia	<u>1,950</u>		
GEORGIA				
1. Georgia, University of, Athens	Ecology of mammals, Poland	73,468	73,468	
HAWAII				
1. Hawaii, University of, Honolulu	Prehistoric archeology, Ceylon	6,660	6,660	

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
ILLINOIS				
1. Chicago, University of, Chicago	Cultural anthropology, India. Archeology and art history, India	55,295 <u>11,400</u>	66,695	123,082
2. Illinois, University of, Urbana	Ethnomusicology, Israel		36,575	
3. Northwestern University, Evanston	Prehistoric archeology, Yugoslavia		11,917	
4. Southern Illinois University, Carbondale	Impact of rural roads, Yugoslavia		<u>7,895</u>	
INDIANA				
1. Indiana, University of, Bloomington	Classical archeology, Yugoslavia			41,706
MARYLAND				
1. Johns Hopkins University, Baltimore	Mammal ecology, India		39,209	39,209

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
MASSACHUSETTS				
1. American Research Center in Egypt (Boston (on consortium of 11 American institutions - see Appendix I)	Egyptian archaeology, Mendes, Egypt (4 years)	127,458	698,622	985,367
	Participating institutions: Brooklyn Museum, Brooklyn, New York			
	University of Chicago, Chicago, Illinois			
	Columbia University, New York, New York			
	New York University, New York, New York			
	St. Catherine's monastery, Sinai, Egypt (3 years)	25,332		
	Participating institutions: Princeton University, Princeton, New Jersey			
	Michigan, University of, Ann Arbor, Michigan			
	Islamic archeology, Fustat, Egypt (3 years)	107,613		
	Participating institutions: Princeton University, Princeton, New Jersey - (4 years)			
	Epigraphic survey, Luxor, Egypt	119,809		
	Participating institutions: Chicago, University of, Chicago, Illinois	<u>380,212</u>	subtotal	

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT ¹		
		IN DOLLAR EQUIVALENT	State	Total
MASSACHUSETTS (cont.)		Grants	Institution	
i. American Research Center in Egypt (cont.)	Physical anthropology, Giza, Egypt	subtotal	389,212	
	Participating institution:			
	Chicago, University of, Chicago, Illinois	4,222		
	Prehistoric archeology, Gebel Adda, Egypt	41,289		
	Study of ancient glass, Egypt	19,500		
	Survey of ancient sites, Luxor, Egypt	9,200		
	Cairo center (4 years)	148,007		
	Egyptian archeology, Hierakonpolis, Egypt (2 years)	91,191		
	Participating institution:			
	Washington, University of, Seattle, Washington			
	Arabic literature	5,001		
	Participating institution:			
	California, University of, Los Angeles, California			

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLARS		
		Grants	Institution	Total
EQUIVALENT STATEMENT				
MASSACHUSETTS (cont.)				
2. American Schools of Oriental Research, Boston -	Biblical Archaeology, Israel (3 years) Principal participating institutions:	281,705		
Institutional Corporation composed of 121 American institutions - see Appendix II	Southern Baptist Theological Seminary, Louisville, <u>Kentucky</u>			
	Drew Theological Seminary, Madison, <u>New Jersey</u>			
	McCormick Theological Seminary, Chicago, <u>Illinois</u>			
	Harvard University, Cambridge, <u>Massachusetts</u>			
	Concordia Seminary, St. Louis, <u>Missouri</u>			
3. Boston Museum of Fine Arts, Boston, Massachusetts	Exhibition of Egyptian Art			<u>5,040</u>

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
MICHIGAN				
1. Michigan, University of, Ann Arbor	Prehistoric archeology, Israel (2 years)	97,660	297,557	297,557
	Prehistoric archeology, Poland (3 years)	95,041		
	Marine biology, India (2 years)	46,808		
	Coral reef ecology, Israel	12,036		
	Limnology, India	30,792		
	Prehistoric archeology, Yugoslavia	15,220		
MINNESOTA				
1. Minnesota, University of, Minneapolis	Roman archeology, Yugoslavia (3 years)	218,487	226,206	226,206
	Paleoecological studies of early man in Iran - collaborative studies with Polish scholars	7,719		
MISSOURI				
1. Missouri, University of, Columbia	Phoenician archeology, Israel (with Corning Museum) - (2 years)	45,750	153,820	153,820
	Mammal ecology, Israel	45,070		
	Hellenistic archeology, Israel (2 years)	63,000		
NEW HAMPSHIRE				
1. Dartmouth College, Hanover	Limnology, India	47,392	47,392	

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
NEW JERSEY				
1. Institute of Advanced Studies, Princeton	Bronze and Iron Age studies, Yugoslavia (4 Projects)	2,030 24,126 (3 yrs) <u>26,628</u>	62,392	129,478
2. Rutgers University, Douglass College, New Brunswick, New Jersey	Classical archeology, Yugoslavia (2 years)			60,876
3. Princeton University, Princeton	Comparative studies of tropical rain forests			<u>6,200</u>

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT		
		IN DOLLAR EQUIVALENT	State	Total
Grants	Institution			
NEW YORK				
1. Brooklyn College of the City University of New York, Brooklyn	Prehistoric archeology, Yugoslavia (2 years)	16,228	140,528	
2. Brooklyn Museum, Brooklyn	Egyptology, Egypt Ancient goldwork, Egypt (2 years) Archeological survey, Egypt Model of Egyptian temple	14,157 6,180 10,293 5,000	35,630	
2. New York, State University of, Stony Brook	Coral reef ecology, Israel (2 years)			35,610

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	Total
NEW YORK (cont.)				
4. Union College, Schenectady	Ecology of delta lakes, Egypt	50,470		
5. Columbia University	Lamont Geological Observatory	2,590	Oceanography, India	
NORTH CAROLINA				
1. Duke University, Durham	Lichenology, Morocco	2,711		2,711
OHIO				
1. Denison University, Granville	Roman archeology, Yugoslavia (3 years)	164,198		977,930

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT		
		IN DOLLAR EQUIVALENT	State	Total
Ohio (cont.)				
2. Hebrew Union College, Cincinnati (HUC's Jerusalem School of Biblical Archaeology is sponsored by a consortium of 45 American colleges and universities - see Appendix III)	Biblical archeology, Israel (5 years)	809,040		
3. Natural Science Museum, Cleveland	Palaeontology, West Pakistan	2,840		
.. Kent State University, Kent	Studies of mollusks, India	1,852		
OREGON				
1. Oregon, University of, Eugene	Prehistoric archeology, Guinea	55,301		55,301

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT			State Total
		Grants	Instiution		
PENNSYLVANIA					
1. American Institute of Indian Studies, Philadelphia (a consortium of 23 American institutions including 8 colleges and universities - see Appendix IV)	Support for AICS Center at Banaras (art history and archeology) - 5 years Support for research programs conducted under the auspices of: California State College, Hayward, California Chicago, University of, Chicago, Illinois Colgate University, Hamilton, New York Columbia University, New York, New York Cornell University, Ithaca, New York Duke University, Durham, North Carolina Harvard University, Cambridge, Massachusetts Jefferson Community College, Watertown, New York New York, State University of, Binghamton, New York Pennsylvania, University of, Philadelphia, Pennsylvania Rochester, University of, Rochester, New York	700,145	975,425	<u>275,280</u>	1,603,986

INSTITUTION Pennsylvania (cont.)	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
1. American Institute of Indian Studies (continued)	St. Lawrence University, Canton, New York Washington, University of, Seattle, Washington Wisconsin, University of, Madison, Wisconsin			
2. Carnegie Museum, Pittsburgh	Biblical archeology, Israel (4 years) Underwater archeology, Israel Paleontology, Poland	156,579 19,172 500	176,251	358,785
3. Pennsylvania, University of, Philadelphia	Studies desert glass, Egypt Study Aknaten Temple, Egypt (4 years) Study tomb inscriptions, Egypt (3 years) Prehistoric archeology, Pakistan	27,468 259,193 32,074 40,050		
4. Pittsburgh, University of, Pittsburgh	Prehistoric archeology, Yugoslavia			93,525

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
TEXAS				
1. Southern Methodist University, Dallas	Prehistoric archeology, Egypt (3 years)	5,204 39,719 <u>73,116 (2 years)</u>	118,039	188,245
2. Texas Technological College, Lubbock	Studies of algae, Israel		9,025	
3. Texas, University of, Austin	Classical archeology, Yugoslavia		<u>61,181</u>	
WASHINGTON				
1. Washington, University of, Seattle	Prehistoric archeology, Pakistan Cultural anthropology, Ceylon (2 yrs.) Study of wild boars, W cst Pakistan Crustacean studies, Ceylon, India, Yugoslavia, and Tunisia	52,376 36,677 46,660 2,390	138,103	140,070
2. Bettelle Memorial Institute, Richland	Tethyan fusulinid studies, Tunisia and Yugoslavia			<u>1,967</u>

INSTITUTION	PURPOSE	APPROXIMATE AMOUNT IN DOLLAR EQUIVALENT		
		Grants	Institution	State Total
WASHINGTON, D. C.				
1. American Anthropological Association	Methodology symposium, several "excess" countries	10,000		176,806
2. American University in Cairo	Medieval Islamic architecture, Egypt		16,076	
3. Dumbarton Oaks Center for Byzantine Studies	Roman mosaics, Tunisia (2 years)			90,730
 WISCONSIN				
1. Wisconsin, University of Madison	Prehistoric archeology, Egypt Cultural anthropology, India (2 projects)	4,024 52,609 11,994	68,627	68,627

APPENDIX I - American Research Center in Egypt Consortium Members

California, University of,
Berkeley, California
California, University of,
Los Angeles, California
Chicago, University of,
Chicago, Illinois
Colo. ^{Colorado} University,
Denver, Colorado
Harvard University,
Cambridge, Massachusetts
Indiana University,
Bloomington, Indiana
Michigan, University of,
Ann Arbor, Michigan
New York University,
New York, New York
Pennsylvania, University of,
Philadelphia, Pennsylvania
Princeton University,
Princeton, New Jersey
Utah, University of,
Salt Lake City, Utah)

Alma College (California)
Anieric College & Theological Seminary
Anacver Newton Theological Seminary
Andrew University
Asbury Theological Seminary
Asbury Theological Seminary
Augustana Theological Seminary
Baltimore Hebrew Teachers Training College
Berkeley Theological Seminary
Berkeley Divinity School
Bethany Biblical Seminary
Biblical Seminary in New York
Boston University School of Theology
Brigham Young University
Brown University
California Baptist Theological Seminary
Candler School of Theology (Emory University)
Catholic University of America
Central Baptist Theological Seminary
Central Conference of American Rabbis
Chicago Lutheran Theological Seminary
Christian Theological Seminary
Church Divinity School of the Pacific
Colgate - Rochester Divinity School
College of the Bible (Lexington)
Columbia Theological Seminary
Columbia University
Concordia Teachers College
Concordia Theological Seminary
Cornell University
Covenant College and Theological Seminary
Crozer Theological Seminary
Drake University Divinity School
Drew University Theological Seminary
Dropsie College
Duke University
Dumbarton Oaks Research Library
Eastern Baptist Theological Seminary
Episcopal Theological School
Episcopal Theological Seminary of the Southwest
Evangelical Theological Seminary
Fordham University
Fuller Theological Seminary
Garrett Biblical Institute

General Theological Seminary
Golden Gate Baptist Theological
Seminary

Gordon Divinity School
Grace Theological Seminary
Hamma Divinity School
Harding College School of Bible
and Religion

Hartford Seminary Foundation
Harvard University
Hebrew Union College

Tifff School of Theology
Jewish Institute of Religion
Jewish Theological Seminary of
America

Johns Hopkins University
Kenyon College

Lancaster Theological Seminary

Louisville Presbyterian Seminary
Lojola University (Chicago)

Lutheran Theological Seminary
(Gettysburg)

Lutheran Theological Seminary
(Philadelphia)

McCormick Theological Seminary
Methodist Theological School
in Ohio

Metropolitan Museum of Art
Midwestern Baptist Theological
Seminary

Moreavian College

Mount Holyoke College
Nazarene Theological Seminary
New Brunswick Theological Seminary
Northern Baptist Theological Seminary
Northwest Christian College

Northwestern Lutheran Theological
Seminary

Oberlin Graduate School of Theology
Pacific Lutheran Theological Seminary
Pacific School of Religion
Philadelphia Divinity School
Phillips University Graduate Seminary
Pittsburg Theological Seminary
Princeton Theological Seminary
Princeton University

Rosary College

San Francisco Theological Seminary

Seabury-Western Theological Seminary

Smith College

Society of Biblical Literature and
Ecclesiastis

Southeastern Baptist Theological
Seminary

Southern Baptist Theological Seminary
Southern California School of Theology
Southern Methodist University (Perkins
School of Theology)

Southwestern Baptist Theological Seminary
Stanford University

St. John's Seminary
St. Joseph's Seminary
St. Mary's Seminary

St. Paul's School of Theology
St. Thomas Seminary (Colorado)
Syracuse University
Texas Christian University
Union Theological Seminary
(New York)
Union Theological Seminary
in Virginia
United Theological Seminary
University of California
University of Chicago
University of Cincinnati
University of Dubuque Theological
Seminary
University of Michigan
University of Notre Dame
University of Pennsylvania
University of Wisconsin
Vanderbilt University
Virginia Theological Seminary
Wake Forest College
Wartburg Theological Seminary
Wesley College
Wesley Theological Seminary
Western Theological Seminary
Wheaton College (Illinois)
Wheaton University

APPENDIX III - Consortium of Institutions which Sponsor Hebrew Union College's Jerusalem
School of Biblical Archeology

Antioch College, Yellow Springs, Ohio
Boston University, Boston, Massachusetts
Brandeis University, Waltham, Massachusetts
Carnegie Museum, Pittsburgh, Pennsylvania
Christian Theological Seminary, Indianapolis, Indiana
Church Divinity School of the Pacific, Berkeley, California
Cincinnati Art Museum, Cincinnati, Ohio
Colgate - Rochester Divinity School, Rochester, New York
College of the Holy Cross, Worcester, Massachusetts
Emmanuel School of Religion, Milligan College, Tennessee
General Theological Seminary, New York, New York
The Hartford Seminary Foundation, Hartford, Connecticut
Harvard University, Cambridge, Massachusetts
Lutheran School of Theology, Maywood, Illinois
McCormick Theological Seminary, Chicago, Illinois
New York University, New York, New York
Oberlin College, Oberlin, Ohio
Pittsburgh Theological Seminary, Pittsburgh, Pennsylvania
Princeton Theological Seminary, Princeton, New Jersey
Saint Mary's College, St. Mary's, California
Saint Paul School of Theology, Methodist, Kansas City, Missouri

California, University of
Chicago, University of
Columbia University
Cornell University
Duke University
Hawaii, University of
Illinois, University of
Kansas State University
Michigan, University of
Minnesota, University of
Missouri, University of
Pennsylvania, University of
Rochester, University of
State University of New York
Syracuse University
Texas, University of
Washington, University of
Wisconsin, University of

American University
Carleton College
Claremont Graduate School and
University Center
Colgate University
Massachusetts Institute of
Technology
Northern Iowa, University of
Oakland University (Rochester,
Michigan)
Pittsburgh University
Sweet Briar College
Worcester, The College of

FOREIGN CURRENCY FUNDS TO BE OBLIGATED BY END OF YEAR

Senator BIBLE. What is your unobligated balance in the account at this time?

Dr. RIPLEY. I will have to ask. Do we have a balance unobligated, Mr. Bradley?

Mr. BRADLEY. Yes, Mr. Chairman. The amount unobligated at the present time is \$1,543,000 which will be fully obligated by the end of the year.

INTERNATIONAL BIOLOGICAL PROGRAM

Senator BIBLE. Now this year as I understand it, you have a new program included in this activity and that is the International Biological Program. You ask \$500,000 for that. What is this program, how does it differ from the Systematic and Environmental Biology Program which immediately precedes it in your justification, and for which you ask \$1,800,000?

Dr. RIPLEY. The International Biological Program is an approved program which has been undertaken for the past 5 years and in which the American staff has been now geared up to make a considerable impact. The proposal is that over a period of some 10 years an international effort will be made to establish measurements and a series of observations on the types of environment around the world essentially, that is, types of Savannah, tropical forests, arctic tundra, grassland and deserts which by being totally studied can hope to give us an appreciation of the extent of our potential resources.

The impact of this program is directly related to our present environmental concerns nationally because as you know, Mr. Chairman, almost everything that happens today in the environment is, in effect, international, rather than national in its scope.

We believe that the Nation has an obligation to participate in this program and to that extent the amount that the Smithsonian can put into it through the approved use of counterpart currencies would be, we feel, a very highly justified portion of the effort that we can help sponsor.

Senator BIBLE. How does that differ from the other environmental biology programs? One is a domestic, the other is an international program?

Dr. RIPLEY. The international biological program is internationally coordinated by a secretariat in London and there is a U.S. national committee for the IBP which determines American participation. The U.S. national committee sets targets and goals for the total national participation. Under the heading of "Systematic and Environmental Biology" we already have provided direct support to the U.S. committee: \$25,000 in foreign currencies in fiscal year 1969 and \$165,000 in the current year. Under our normal activities in biology, these IBP research proposals come to us just as proposals would to a foundation from a university, institution, or an individual associated with such an institution who wishes to perform research in one of the countries in which we have foreign currency available. Thus, this research is specifically coordinated with the total international biological program. The IBP request for 1971 includes both direct support to the U.S. national committee and to American research institutions participating

in IBP research. We have broken out this item from the "Systematic and Environmental Biology" heading on page C-1 because the planning of the national committee has reached a stage where the Smithsonian's contribution can be expected to be a significant amount.

Senator BIBLE. I notice a statement on page C-2 that appropriations to buy excess foreign currencies are not new appropriations. Would you please explain that?

Dr. RIPLEY. We feel that these foreign currencies are extremely effective in use for research because they are not new appropriations of tax dollars as such.

Senator BIBLE. Why aren't they?

Dr. RIPLEY. They are funds which are held abroad in foreign currencies. They are called dollar funds but they are not available for use and they are not ever used as dollars. They are used in the currency of the country which holds them.

Senator BIBLE. We pay our dollars for them?

Dr. RIPLEY. The United States has sold surplus agricultural commodities to those countries and instead of asking for payment in dollars we have been willing to accept credit in the currency of that country, with the stipulation that it may not be transferred back into dollars.

Senator BIBLE. Very well.

Dr. RIPLEY. Now these appropriations do not add appreciably to the President's budget total because the Commodity Credit Corporation reduces its appropriation request by an amount equal to the amount of the foreign currencies expended. Also, we feel, Mr. Chairman, that the holding indefinitely of these excess accounts abroad means continuing losses to the U.S. Treasury as, inevitably, these accounts lose value through inflation and devaluation.

POLISH CURRENCIES

Senator BIBLE. In one country now, Poland, where you are carrying on archeological research, the agreement between the United States and Poland provides that at the end of 40 years all of the excess currencies will be paid to the United States in American dollars. In this case, do you believe that your statement that appropriations for the Special Foreign Currency Program are not new appropriations is still true? I assume this is an exception to that general statement you made.

Dr. RIPLEY. I would be willing to qualify that slightly, Mr. Chairman, in the sense that, after 40 years, experience with loans made during the 1920's shows that there has been some tendency for the U.S. Government to wash out some of these long-term debts. There is also the fact that continued deterioration of the value of these currencies means that the real dollar value would not be the same in any case.

DOLLAR COSTS OF FOREIGN CURRENCY PROGRAM

Senator BIBLE. Very well. What have been the direct dollar costs in the Smithsonian Institution for its foreign currency program in fiscal year 1970?

Dr. RIPLEY. It is approximately \$112,000, Mr. Chairman.

Senator BIBLE. What will it be in fiscal year 1971?

Dr. RIPLEY. The only difference in our request for 1971 is the pay increase of \$2,000, so it is approximately the same.

Senator BIBLE. How many positions have been utilized for administration of this program in fiscal year 1970?

Dr. RIPLEY. Six positions, Mr. Chairman.

Senator BIBLE. How many will be used in fiscal year 1971?

Dr. RIPLEY. Six positions.

Senator BIBLE. It remains six?

Dr. RIPLEY. We are not asking for any increase.

Senator BIBLE. All right. Very well. You may now proceed.

SALARIES AND EXPENSES INCREASES

Dr. RIPLEY. We have the "Salaries and Expense" items for which, as a total, we are requesting an increase of \$6,902,000 for fiscal year 1971. This increase includes the item that I previously mentioned, that is \$3,125,000 for the Zoo. In addition, an amount of \$400,000 is for necessary pay purposes. The balance, \$3,377,000, is distributed in the following categories of activity.

RESEARCH, DOCUMENTATION, AND EDUCATION RELATED TO THE ENVIRONMENT

An amount of \$1,350,000 is for improved basic research, documentation and education related to environmental assessment, monitoring and prediction. Selected research projects in the National Museum of Natural History in biology, geology, and anthropology would be funded.

The Smithsonian Tropical Research Institute will establish an environmental monitoring program on Barro Colorado Island and conduct an expanded series of comparative marine ecological studies.

The Chesapeake Bay Center will provide related information in connection with environmental problems. We will establish the Radiation Biology Laboratory firmly in its new building in order that our productive basic research program can be developed.

The resources of the seas can be more fully identified if additional funding can be provided for sorting of marine biological and geological collections at the Smithsonian Oceanographic Sorting Center.

Continued funding of our Center for Short-Lived Phenomena will provide a global information network speedily locating and reporting on natural events of great interest to environmental scientists, geologists, and Government officials.

We are ready to begin actual work on the revision of the Handbook of North American Indians. Increased funding for our higher education and research training program will provide additional opportunities for outstanding individuals from colleges and universities.

Lastly, the Institution is seeking funding for the environmental sciences aimed at a special program of identifying biological benchmarks as we call them, that is biological areas of critical importance as telltale indicators of environmental change; monitoring such rates and processes of change; undertaking research in man's social adaptation to his surrounding; communicating environmental knowledge to the public through exhibits and other means; and developing a national referral center for biological data.

IMPROVING REFERENCE RESOURCES

In addition, we request an increase of \$455,000 to help achieve reinforcements within our arrays of reference resources.

We feel, Mr. Chairman, that it is most important to seek your support in applying electronic data processing techniques for handling the complex data associated with our collections in art, history, and science, strengthening our library staff and materials critical to productive research and education efforts, and to improving our photographic laboratories which provide visual information.

STUDIES AND DISPLAYS OF CULTURAL AND TECHNOLOGICAL DEVELOPMENT

We are requesting an increase of \$1,125,000 to be used for studies and displays of cultural and technological development and change so closely tied in with man's own physical evolution and with his relationships to his natural surroundings.

We are seeking funds to develop experimental exhibits and to provide opportunities for museum training under the National Museum Act. To meet the accelerated public interest in man's aeronautical and astronautical achievements, funds are requested to meet our commitments under the space artifacts program.

SPECIAL PROGRAMS FOR THE ENVIRONMENTAL SCIENCES AND THE AMERICAN REVOLUTION BICENTENNIAL

We feel that at this point it is worth noting that the Executive Office has requested the Smithsonian to develop two specific programs which are different from those activities that they have authorized us to develop in the past.

One of these programs is in the environmental sciences area and cuts across organizational lines which are, in effect, line items in our regular budget presentation. Rather than to consider our organizations as simply activities in buildings, we like to try and assess how a program conducted within one or more buildings can be thought of as being made more effective in the interests of the American people. So the Administration has asked us to develop two programs this year, one concerning environmental science and the other concerning preparations for the American Revolution Bicentennial celebrations spanning the years through 1976 to 1978.

This is the only project, I might add, so far approved in the President's budget for official funding for the bicentennial celebrations aside, of course, from the activities of the Commission.

We are very pleased with the opportunity to develop these programs because of their contribution and because it may well be that there would be some appeal to committees such as yours, Mr. Chairman, in our developing a more broad-gauge approach towards our activities in simplifying our presentation to yourself, sir, and to your Committee.

For example, rather than having as many as 41 line items for a total operating budget of approximately \$30 million, we might have 10 line items which would in effect describe what we are really doing rather than simply listing our buildings and offices as we have in the past.

RELATIONSHIP OF THE ENVIRONMENTAL SCIENCES PROGRAM TO TRADITIONAL SMITHSONIAN WORK

Senator BIBLE. Now on this environmental science program, you say you are asking \$600,000 for fiscal year 1971. Have you not carried on that type of work in the past in other Smithsonian programs?

Dr. RIPLEY. Yes, sir. As you know, the Smithsonian has been involved in this kind of work in the past and this is exactly why the Executive Office of the President and its management experts were impressed enough to ask us to develop further such a program.

BUILDING A STRONGER EFFORT IN THE ENVIRONMENTAL SCIENCES

Senator BIBLE. I thought you said you were already doing it in the past in other programs?

Dr. RIPLEY. That is right, but not in specifically the same way. In other words, what we are trying to do is to demonstrate the fact that over the years we have been developing an essential expertise which can be applied to what is now considered to be a question of great national importance, that is, studies and attempts to understand exactly the level and rates at which the environment in this country is changing and what this portends for the future of the American people.

Senator BIBLE. Where was this work carried on before?

Dr. RIPLEY. In a variety of places and ways.

Senator BIBLE. For example?

Dr. RIPLEY. Past efforts have not necessarily been structured towards the specific need. For example, beginning in 1907 in the middle of the Mall in Washington, D.C., our Division of Radiation and Organisms, as it was then called, commenced to measure the incidence of solar light on the center of Washington. This experiment was continued and the last series of measurements was made in 1969 and a matter of great significance emerged which may have a considerable impact on human life; that is, that during this period of time there has been a decline of 16 percent in the amount of solar light reaching the center of the Mall in Washington, D.C. One can only assume that a figure of 16 percent is of great significance, but I cannot say at this time exactly what it portends for the future of Americans living in Washington, D.C., or any other city, in which one can only assume the situation has been similar.

Senator BIBLE. You say that this work was carried on in a number of other areas in various programs by the Smithsonian. If you are consolidating these programs into the environmental science program, will you reduce these other programs?

Dr. RIPLEY. No, sir. We feel that what we are really doing is building a stronger program based on our traditional abilities to do such a program and in the interests of American research for the future. In other words, by focusing on the combination of research tasks, that we know that we can perform, by acting as a public forum which has been a traditional activity of the Smithsonian since its commencement, to inform Members of the Congress, members of the public, interested and concerned citizens and experts, about what indeed is the real truth of many of the environmental phenomena that are occurring and also by developing our educational potential for

the public, we can do many of the things which some of the over 400 bills introduced into the Congress in the first session of the 91st Congress are attempting to get at.

That is, how can we awake Americans to what potentially needs to be done? How can we inform concerned persons and people in authority about what limits they can expect in the environment to continue to change, what those limits of tolerance should be. Finally, how can we develop additional research along the lines of which we have already showed that we have expertise. Our efforts are aimed at informing both the public and those in the Government and in authority.

APPLICABILITY OF DATA PROCESSING TO ENVIRONMENTAL QUESTIONS

Now, one of the most important areas in which we have begun work in the past 5 years is the matter of applying data processing techniques to the information associated with the specimens that we have obtained over the years. As I believe I pointed out to this Committee in the past, one of the great resources of this Institution is its vast wealth of specimens. For many years these were somewhat disregarded and not appropriately funded or taken care of in terms of the research that could be developed on them.

We have been trying to bring this capability up, as it were, to increase the rate at which we could begin to assess what we already have. When one thinks, for instance, of the fact that our collections of fish along the East Coast were first commenced in 1870, then it is potentially possible to put information regarding those original collections against a scale in time with reference to the specimens which we are now collecting. Then one can find out how certain species of food fish, for example, are disappearing and project the rates at which they will potentially continue to disappear. This information would be in itself an absolutely invaluable guide.

It is as good and certain as any sort of roster or tally which one can possibly develop and the information exists. Its accessibility depends on us now to seek the assistance and the aid to be able to put this information into data processing form where we can save time, money, and personnel for the future in being able to develop ready reference assessments.

That is one of the important areas in which we can increase our potential.

NUMBER OF SMITHSONIAN PROGRAMS INVOLVED WITH THE ENVIRONMENT

Senator BIBLE. How many programs do you have now, Dr. Ripley, where they are involved with the environment?

Dr. RIPLEY. Well, we have, for example, the museum collections themselves that I have just mentioned. This is a great natural resource and has been understaffed and underfunded in the past.

Senator BIBLE. What was the total number that you have?

Dr. RIPLEY. We have the Chesapeake Bay Station, that would make another. We have the Astrophysical Observatory, which has certain geodesy programs which are related to environmental studies. We have the Tropical Research Institute and the Office of Ecology, the

Office of Oceanography, the Center for the Study of Man, the Center for Short-Lived Phenomena, and our own Research Awards Program.

NUMBER OF EMPLOYEES AND FUNDS CURRENTLY INVOLVED IN ENVIRONMENTAL SCIENCES PROGRAMS

Senator BIBLE. How many people do you have involved in those programs?

Dr. RIPLEY. In fiscal year 1970, we have approximately 156 positions in the special research programs and then in the National Museum of Natural History itself, we have a present total of 258, not all of whom are concerned in this directly. So adding another 100, let's say, to the 156, would be approximately 256 total personnel in some way involved in environmental matters.

Senator BIBLE. Well, now, these 14 additions that you are adding to the environmental science program, what are they?

Dr. RIPLEY. The 14 additional positions that we are asking for under the environmental science program are specifically as follows: four additional biologists, with funds for research support, for projects in the area of monitoring rates and process of change; one anthropologist and one historian to undertake research on social biology, the interplay between social sciences and biology itself; one scientist as a program planner including communicating environmental knowledge to the public through such means as continuing the preparations for our exhibition hall on environmental life series, and, for developing a national referral center—this is the area of data processing—four data handling technicians and three computer specialists.

Senator BIBLE. What is the total amount of money that you spend on this program right today, the one about which you have just testified?

Dr. RIPLEY. Yes, sir. I cannot give you a specific figure on it at this point because it is contained in several of these line items which have been considered as units in the past. Specifically for example, the total budget of our astrophysical laboratory is a little over \$2 million. But I would not state for a moment that the total budget of the astrophysical laboratory is involved in the environmental monitoring and predictive work, only a small amount of it.

However, granting that and the question of the Natural History Museum, I would say that approximately \$3 million might be a total that is involved in this effort.

Senator BIBLE. Very well. You may proceed with your presentation.

MUSEUM EXHIBITS AND RELATED PRESENTATIONS

Dr. RIPLEY. Now we are in addition seeking funds in an amount of \$1,125,000 to develop experimental exhibits and to provide opportunities for museum training under the National Museum Act. To meet the accelerated public interest in man's aeronautical and astronautical achievements we would like to meet our commitments under the space artifacts program.

We also would like to develop during this year the Renwick Gallery of Art, the building which has been authorized for our use next to Blair House on Pennsylvania Avenue. We are requesting funds to prepare for a fiscal year 1971 opening.

One of the most popular activities in which the Smithsonian has been engaged continues to be its Folklife Festival and similar presentations, and we are requesting a small amount for these activities.

BICENTENNIAL OF THE AMERICAN REVOLUTION

The other program that I mentioned earlier, Mr. Chairman, the Bicentennial of the American Revolution, presents an extraordinary opportunity, we believe, to review national accomplishments and goals and to renew public hope and confidence in the future. The Institution can play an important role in this observance, as we did in 1876, drawing upon our scholarly staff, collections documenting the history and development of the United States, effective working relationships with the museums and other organizations across the Nation, and a strong attraction, of course, for the visiting public.

We estimate that by 1976 there will be close to 200,000 people a day on the Mall in the summer. I might point out, Mr. Chairman, that the week before last the National Museum of History and Technology celebrated its 30 millionth visitor since it was opened in January 1964. On the basis of hours during which this building has been open in this period of time, that means that someone walks in one of the doors every 3 seconds.

It is our intention to draw on all the elements of the Institution, the mainstay of which really is in that building, the Museum of History and Technology, along with other exhibits and exhibit potential areas in the National Collection of Fine Arts, the National Portrait Gallery, and elsewhere. The Bicentennial Commission has proposed a coordinated program of activities which are festive in nature as well as those which capture the ideals of the American revolutionary period. In order to mount any significant program at all, we must begin to phase into these activities now.

PAST AND PLANNED BICENTENNIAL EXHIBITS

Indeed, as you know, Mr. Chairman, we have begun with small existing resources to put on a series of exhibits during the past 3 years. Now I would be glad, if I could, to enter in the record our schedule of proposed exhibits beginning with the Boston Tea Party and going on through the years which we have in planning now for this bicentennial program.

Senator BIBLE. Without objection, that will be in the record.
(The information follows:)

Proposed American Revolution Bicentennial Exhibits

A listing of proposed exhibitions commemorating the celebration of the 200th anniversary of the United States which are currently planned for the years leading up to July of 1976.

1. A Nation of Nations (theme of proposed Bicentennial Pavilions)
2. Corridors of American Experience
3. Beyond the Appalachians
4. History of Congress
5. Everyday Life on the Eve of the Revolution
6. The Price of Independence
7. The Coming of the Revolution
8. The First Continental Congress
9. The Black Man in the American Revolution
10. The Signers of the Declaration of Independence
11. The Military History of the American Revolution
12. The Centennial Style
13. Dances and Music of the American Indians
14. First Encounter
15. Spanish-American Art
16. Afro-American Art
17. American Indian Art
18. Colonial Communications
19. Historical Archeology
20. The Capture of the Hancock
21. The Portraits of George Washington
22. Colonial Artists and Artisans
23. The Citizen-Soldier in the Revolutionary War
24. Man and Nature (an historical survey of the changing environment in the United States)

The above listing represents themes or topics that have been suggested by our museum and art gallery directors and staff. These must now be developed into an overall Smithsonian Bicentennial exhibition plan which, using the resources of all our museums, would give a coherent picture of our Nation's origins, history, and present state.

In each instance, we will plan these exhibitions so they can be used to the fullest extent by our Smithsonian Institution Traveling Exhibition Service for display at museums, universities, and other public institutions throughout the United States. The above listing is not to be regarded as our total program, but merely as illustrative of the objectives defined by the Bicentennial Commission.

ADMINISTRATIVE AND CENTRAL SUPPORT SERVICES

Dr. RIPLEY. An additional amount of \$447,000 is sought for administrative and central support services and for the maintenance, operation, and protection of buildings. Included in this request are the costs of serving the Renwick Gallery. As it is being prepared for opening and for operations afterwards, and funding the higher cost of utilities, communications, and the repair and preventive maintenance of security and fire detection systems, elevators, and escalators. These higher costs are brought about by additional building spaces provided by congressional authorization, increased public use, and inflation in the prices of goods and services.

EFFECTS OF INFLATION

I think it is only fair to point out, Mr. Chairman, that during the past few years with the moderate budget increases which we have been generously accorded by the Congress in these areas, we have been unable effectively to keep up with the increases in costs of living, in salaries, and in appropriate support to enable our experts to function. We are suffering in terms of being able to hold the specialists that we feel we must have in order to develop the performance of the Smithsonian effectively for the American public.

I think, Mr. Chairman, that is all I have to say at this time.

OBJECTS FROM THE NATIONAL COLLECTIONS

Senator BIBLE. That is a very fine presentation. I will tell you, all these exhibits—rockets and moon rocks or whatever you have here—intrigue us.

Dr. RIPLEY. We have some very interesting things to show you and I would be happy to do so if I may.

Senator BIBLE. I assume that is why you brought them up, to show them.

REVOLUTIONARY WAR SWORD

Dr. RIPLEY. Let me begin with the sword of Col. Benjamin Talmadge. This sword is of some interest to me, it is a unique one with the officer's grip and handle. It is very valuable and as I say, unique, the only one of its kind which has survived. Colonel Talmadge who is a neighbor of mine at least atmospherically speaking, because he came from Litchfield, Conn., where I come from, was Washington's Chief of Intelligence and was an officer on the staff, one of the first officers of the Order of the Cincinnati, and a magnificent figure in revolutionary history. We are enormously proud and pleased that we have been able to secure this unique item.

Senator BIBLE. That is the sword he carried when he was—

Dr. RIPLEY. That was his sword, his war sword.

Senator BIBLE. All right.

RUSSIAN COINS

Dr. RIPLEY. These coins, Mr. Chairman, are a part of the collection of Russian coins given us by Willis Dupont and valued at a million and a half dollars. One of them is a coin of Peter the Great, dated 1702 and

the other is one of only two platinum 12 ruble pieces struck in 1845 as a result of the discovery of platinum.

Senator BIBLE. How much did you say these two coins were worth?

Dr. RIPLEY. The total collection is worth \$1.5 million. Those two coins are worth \$20,000 and \$60,000.

Senator BIBLE. You better take them back.

Dr. RIPLEY. We will be happy to.

Senator BIBLE. Do you have insurance on them? This might be a pretty good place for a holdup.

Dr. RIPLEY. I believe our insurance will cover the situation.

Senator BIBLE. You have made your point. Incidentally, that J. K. Lilly collection is one of the most beautiful I have ever seen. Is this contributed outright to the Smithsonian?

Dr. RIPLEY. Yes, it is, sir, by virtue of a legislative enactment providing an equivalent tax relief to the estate.

Senator BIBLE. That has a tremendous value.

Dr. RIPLEY. It is worth over \$6 million by now, I believe.

CROWN OF THORNS STARFISH

I have the Crown of Thorns starfish, which I thought would interest you, Mr. Chairman, because it is the object of considerable Congressional interest, as you know.

Senator BIBLE. Yes; we know a great deal about them and they are sure raising havoc with the coral reefs out of Guam and out of Samoa and out of the Hawaiian Islands. We have been hearing repeatedly about them.

Dr. RIPLEY. Senator Jackson and Senator Fong have introduced a bill suggesting considerable research on this extraordinary starfish which is capable of eating living coral of certain species and we are very interested in it. We have been participating in some of the studies.

Senator BIBLE. Who is the lead agency in that? It seems to me like every department that has been up here recently has told us about this bad man—what is the name of it again officially?

Dr. RIPLEY. Crown of Thorns.

Senator BIBLE. Crown of Thorns Starfish. I think we have appropriated money into almost every agency in the Federal Government.

How much do you ask for your participation here?

Dr. RIPLEY. We are not asking at this time although we are mentioned in the legislation that has been introduced by Messrs. Jackson and Fong.

Senator BIBLE. Who is the lead agency?

Dr. RIPLEY. The Department of the Interior.

Senator BIBLE. Well, that is the Department but what agency within the Department of Interior? Is this USGS?

Dr. RIPLEY. Fisheries.

Senator BIBLE. Bureau of Commercial Fisheries?

Dr. RIPLEY. Yes sir. And the Smithsonian is mentioned in that legislation.

Senator BIBLE. You are not asking for any money in this budget for that?

Dr. RIPLEY. Not in this budget; no, sir.

Senator BIBLE. I think that answer is you plan on asking for something in the future budget?

Dr. RIPLEY. Not at the present time; no.

Senator BIBLE. Not at the present time, but in the future you plan on asking for it?

Dr. RIPLEY. We have no plans at this time to ask for anything.

Senator BIBLE. Oh. Why are you so interested in the starfish then?

Dr. RIPLEY. Because we have within our program of the National Museum of Natural History people who have been studying it in any case, people who already have developed information on it quite within our existing budget.

Senator BIBLE. You do have people down there who are studying this Crown of Thorns starfish?

Dr. RIPLEY. Not exclusively, but we do have experts who know about it and are prepared if requested to spend extra time studying it.

Senator BIBLE. Very well.

LOST CITY, OKLA., METEORITE

Dr. RIPLEY. We also have here the Lost City meteorite from Lost City, Okla., which I would like to ask Dr. Galler to bring up and show you.

The fireball that produced this meteorite was photographed by the Smithsonian Astrophysical Observatory's prairie network at 8:15 p.m. c.s.t., Saturday, January 3, 1970. An impact point was calculated from the photographic data, and Mr. Schwartz of the prairie network office in Lincoln, Nebr., went in to the Lost City area to organize search activities. While driving on a snow-covered country road at 2:40 p.m. on Friday, January 9, his attention was attracted to a dark rock on the side of the road. He examined the rock, recognized it as a meteorite, and then became mildly hysterical. This is the first prairie network meteorite recovery in over 5 years of operation of the network.

The specimen was brought immediately to Washington, where its study is being coordinated by the Division of Meteorites, National Museum of Natural History. Material has been removed for analysis, particularly for the prompt study of short-lived, radioactive isotopes, and distributed to seven laboratories in this country and one in Germany.

You will note, Mr. Chairman, the lump shape, it is an aerodynamically shaped bronzite chondrite, as it is called, a common type of stony meteorite, and it weighed 22 pounds. Its particular scientific importance lies in the fact that its orbit is precisely known and as a result we are able to determine the location of the asteroid belt from which it was presumably derived.

SOURCE OF THE METEORITE

Senator BIBLE. Where was the asteroid belt from which it was derived?

Dr. RIPLEY. The belt is one from which suspicions have emerged in astrophysical circles for some years that our meteorites were coming from.

Senator BIBLE. I know, but where is the belt?

Dr. RIPLEY. It is beyond the orbit of Mars, as I recall.

Senator BIBLE. How many light-years or whatever measurement you use, is that away from earth?

Dr. RIPLEY. I would have to add that for the record, I cannot give you that information.

Senator BIBLE. Several miles away.

Dr. RIPLEY. It is a few miles away.

Senator BIBLE. All right.

CONSERVATION OF ART OBJECTS

Dr. RIPLEY. I have here some examples of our conservation laboratory's work in cleaning paintings which perhaps Mr. Blitzer could show you. They are quite striking in that in the ability of our laboratory technicians to preserve paintings lies the future of the Smithsonian's collections of objects of art. I think that this will give you some indication of the striking work which they are capable of doing without which these National Collections would be gradually deteriorating.

SPECIMENS OF FISH AS BIO-INDICATORS

I have also here two specimens of fish which are part of what we were talking about as bio-indicators. These specimens indicate quite clearly the information that can be developed through data processing of good environment or bad environment. This specimen results from a poor environment for a fish and this one from a good environment.

The data can be developed from specimens and then placed on computer tape for instant recall.

USE OF A COMPUTER TO IMPROVE INFORMATION AVAILABILITY

Now, Dr. Galler has a rather neat little chart here on the effects of pollution on the life of a stream. Here you see a list of the information components which exist in the Smithsonian collections but are not readily available because of the lack of appropriate data processing and retrieval techniques.

At the present time, by the way we have our specimens arranged we have the locality, the collector, the name of the specimen, the date collected, the associated organisms that were with the specimen, the kind of habitat, the collection method, size, breeding condition, and other data on the specimen itself. Then its particular description and anything else we may be able to derive from it. This information goes into the old-fashioned card file or ledger type of data indexing record. These systems are not adequately answerable in terms of the kinds of information that we wish ready-retrieval on.

However, by computerizing the data storage, we can produce a tape, we can program information that we already have, and we can get this information very, very rapidly. The data then is available not only for immediate questions but for eventual questions.

We find as we are beginning to develop this system—Dr. Galler has there on the table, a sample of the kinds of tape—that this information is immediately of service to agencies and industry, visiting scientists, researchers, universities, farm and forest groups, fish and game officials, State and local environmental agencies, and other Federal

agencies. This is the way by which the Smithsonian's collections can become absolutely vital for the future.

WILDLIFE STUDY CARDS

I wanted to show you one other exhibit and that is the cards which we have developed for the Department of Defense for identifying animals and plants in tropical Southeast Asia. These cards are rather interesting because they are an example not of how the Smithsonian is involved in sinister secret military research, for we are not, but rather how our resources in our Smithsonian collections and data bank can help Americans overseas. By the simple mechanism of a card type of this sort, we can point out which are the dangerous insects, animals, plants to GI's in the field. This kind of research is in line with the sort of things that the Smithsonian has been doing for the military effort since the Civil War.

FOREIGN CURRENCY

I do have one of the results, Mr. Chairman, of the publications emanating from our foreign currency program. You will recall some years ago President Kennedy introduced in his first message to Congress the concept that Americans should help in saving the monuments threatened by the flooding of the Upper Egypt Nile Valley and as a result of that a large program of salvaging archeology was inaugurated which eventually resulted in helping to save the fantastically interesting temples of Abu Simbel and Philae and also in developing information before the land was flooded on ancient civilization in the Aswan Dam area. These programs have been largely financed by foreign currency appropriations both then and subsequently to the Smithsonian. One of our greatest prides is the research which we have been able to carry on through the judicious use of excess currency funds appropriated to the Smithsonian and the publications for the American people resulting from this research.

Senator BIBLE. Very well. I appreciate the very fine presentation that you have made, as you usually do. I have a number of questions I would like to ask you.

TOTAL STRENGTH AND EMPLOYMENT IN WASHINGTON

First, what is your total strength at this time?

Dr. RIPLEY. Approximately 2,000 people. Mr. Bradley corrects me, he says 1,890.

Senator BIBLE. 1,890?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. That is total all over the world?

Dr. RIPLEY. That is right.

Senator BIBLE. How many of the 1,890 are located in Washington, D.C.?

Dr. RIPLEY. Approximately 100, Mr. Chairman, are outside of Washington.

Senator BIBLE. One hundred outside of Washington, the balance in Washington?

Dr. RIPLEY. Yes; slightly over, I would say perhaps, but under 110, outside of Washington.

DEVELOPMENT OF INFORMATION RESOURCES

Senator BIBLE. All right. Very well.

You make a general statement to the effect that some 5 years ago you began to explore ways of developing your information resources to make them more accessible and usable. What does that mean?

Dr. RIPLEY. In connection with the data processing problem, I am sure that you are aware, Mr. Chairman, that all Government agencies have been asking for data processing facilities but I would like to point out that we feel it is absolutely fundamental to our needs and can so prove in connection with some of our projects which are in the national interests.

The information storage and retrieval project for biological and geological data has been funded by a \$552,000 3-year grant from the Department of Health, Education, and Welfare. That funding will terminate in June 1970. We are asking at this time for funds to continue the development of this project.

The project was conceived as a permanent research administrative system. Developmental research has been carried out essentially with the grant funds received over the past 2½ years and has been tailored to the management and researching of large collections of information consisting of millions of specimens over a long period of time, more than 25 years. The system is designed to carry the museum beyond the short-term objectives and immediate individual interests of small sets of data.

COLLECTIONS USED IN PILOT PROJECT

Now the collections utilized in this project were the petrographic collections of the Department of Mineral Sciences, the crustacea collections of the Department of Invertebrate Zoology, and certain taxonomic groups in the Division of Birds.

Approximately 15 people have participated in this project in the National Museum of Natural History and the Information Systems Division but these people can only put in small portions of their time so the annual possible investment in man-years is only about two or three.

In order for us to develop a workable information retrieval system, we had to solve three major problems.

First, the diversity of specimens and related source documents provided that we must develop an automatic coding system which was compatible with the various methods used, both in the past and in the present, to determine specimen locations on the surface of the earth.

Second, each specimen has an average of 10 scientific synonymous names. The system had to be so organized that it could respond to requests no matter which one of the many synonyms was used in making the research or in originally identifying the specimen.

Third, a method had to be developed to structure the data on the basis of taxonomic hierarchy. This was necessary because some of the requests for information are expected to be formulated on a level of taxonomic groups, and because the sheer bulk of the information dictates structuring the data to implement economically reasonable searches.

One by one these problems have been solved and at this point in time it seems that the Smithsonian will live up to its commitment insofar as the initial development of the system is concerned. The

only exception is that instead of 50,000 specimens in the record bank, the pilot system will have something less than 20,000 due to a layoff of data transcribers, caused by a shortage of funds. However, even this limited data input has been sufficient to test the system. Specimen data from all three collections have been successfully entered and retrieved from the record bank utilizing a variety of descriptors.

EXTENDED COVERAGE TO ADDITIONAL COLLECTION AREAS

Thus, the Smithsonian has demonstrated that a workable information retrieval system can be developed to handle large quantities of specimen-related data.

It has further demonstrated that such a system can be applied to the collections and that such an application will result in significant savings in time, effort, and funds for researchers not only from the Smithsonian but also, I might add, from all over the world, because more and more this information is going to be shown to be absolutely basic to attempting to solve some of the questions that all of the people will be asking about our environmental future.

Senator BIBLE. Thank you.

AUTHORIZED POSITIONS

You testified just a moment ago that you had 1,890 people aboard. Now how many authorized positions do you have? Is that your full authorization?

Dr. RIPLEY. 2,077 at this time.

Senator BIBLE. 2,077 authorized and you fill 1,890 up?

Dr. RIPLEY. That is right. There is, of course, the zoo total of 246 presently authorized.

Senator BIBLE. That is over and above?

Dr. RIPLEY. Which is over and above. At present, the zoo employment stands at 215.

Senator BIBLE. They have 215 aboard and they have 246 authorized.

Dr. RIPLEY. Yes, sir.

Senator BIBLE. What are the corresponding figures for fiscal year 1971?

Dr. RIPLEY. We are asking for an increase of 119 positions in the Smithsonian and six at the zoo, for a total of 2,196 plus 252, making 2,448.

Senator BIBLE. Those are authorized positions?

Dr. RIPLEY. We are asking for those.

Senator BIBLE. You are asking for the total.

Dr. RIPLEY. Yes, sir.

SALARIES AND EXPENSES

Senator BIBLE. There will be printed in the record the justification material which you have supplied in support of your fiscal year 1971 budget estimate for salaries and expenses amounting to \$36,367,000. This is an increase of \$8,233,000 over the appropriation for fiscal year 1970. However, over \$2,700,000 of this increase results from transfer of the National Zoological Park operations to the Smithsonian Institution. These operations were the responsibility of the government of the District of Columbia heretofore.

(The justification follows.)

SMITHSONIAN INSTITUTION

"Salaries and Expenses"Summary Statement

Appropriation Act, Fiscal Year 1970.....	\$28,134,000
Anticipated Supplemental	<u>\$1,431,000</u>
Total Available, Fiscal Year 1970.....	29,565,000
Non-recurring.....	<u>-100,000</u>
Fiscal Year 1971 Base.....	29,465,000
Budget Estimate, Fiscal Year 1971.....	<u>36,367,000</u>
Increase, Fiscal Year 1971.....	<u>\$6,902,000</u>

Summary of Increases Fiscal Year 1971

	<u>Amount</u>
Necessary Pay-- for annualization of General Schedule and Wage pay raises and periodic step increases.....	\$531,000
Office of the Director General of Museums-- to design and develop new educational exhibits and to provide training under the National Museum Act.....	75,000
National Museum of Natural History-- to apply computer systems to important botanical, vertebrate, invertebrate, and fossil collections, and to undertake special anthropological, geological, and marine invertebrate research projects.....	200,000
National Air and Space Museum-- for preservation and display of historic space objects in keeping with strong public interest sparked by the moon flights	50,000
National Zoological Park-- for the operation of the new Hospital-Research Building and other spaces, grounds care, animal purchases and food, and animal health programs	2,994,000
Anacostia Neighborhood Museum-- for continued successful operations of a community museum with special emphasis on workshop, craft, and instructional activities for children	75,000
Renwick Gallery of Art-- to prepare this restored and renovated museum of arts, crafts, and design for a planned public opening in fiscal year 1971	100,000

Joseph H. Hirshhorn Museum and Sculpture Garden-- to prepare the gift collections of art and sculpture for the opening of a major art gallery under construction on the Mall	375, 000
Smithsonian Tropical Research Institute-- for an environmental monitoring program on Barro Colorado Island, building on 40-years of project research, and for comparative marine ecological studies	100, 000
Radiation Biology Laboratory-- to operate, staff, and equip the new laboratory building in order to realize the research potential permitted by the authorized new space	200, 000
Smithsonian Office of Ecology-- for baseline biological studies and property protection at the Chesapeake Bay Center for Environmental Studies--a geographic area of unusual economic importance	\$55, 000
Office of Oceanography and Limnology-- to sort, identify, and distribute backlogged marine biological and geological collections being requested by researchers for the study of marine resources	150, 000
Center for the Study of Man-- to begin actual work on the revision of the Handbook of North American Indians (the standard reference in this field) and to fund grants for urgent anthropology studies.....	50, 000
Center for Short-Lived Phenomena-- for the maintenance of a rapidly developing and responsive worldwide reporting system on biological, geophysical, and astrophysical events as they are occurring	25, 000
American Revolution Bicentennial Program-- for scholarship, exhibitions and other presentations, and national cooperative assistance to other museums	400, 000
Environmental Sciences Program-- to build on traditional Smithsonian competence in the sciences and the humanities for environmental assessment, prediction, and education	600, 000
Academic Programs-- to serve college, university, and Smithsonian needs by providing additional opportunities for research and advanced study and to improve the elementary and secondary school tour program	75, 000
Office of the Treasurer-- for strengthened financial management and postage and Workmen's Compensation requirements.....	60, 000

Division of Performing Arts-- for production requirements of the American Folklife and College Theatre Festivals and assistance to state and local cultural groups	50,000
Office of Personnel and Management Resources-- to meet an increased personnel assistance workload created by new Smithsonian programs and additional Civil Service Commission requirements.....	50,000
Health Units-- to establish a health unit in the Arts and Industries Building to serve emergency needs of visitors and staff	10,000
Information Systems Division-- to improve the reference and research value of Smithsonian collections in art, history, and science by applying modern information storage and retrieval techniques.....	\$100,000
Smithsonian Institution Libraries-- to correct serious deficiencies in its ability to serve the Institution and outside users by increasing book and journal purchases, binding and preservation, reference services, and the protection of gift and rare books.....	150,000
Photographic Services Division-- for exhibit and publication photographic services	25,000
Smithsonian Institution Press-- for the preparation of exhibition and collection catalogs and research reports.....	75,000
Buildings Management Department-- to meet the costs of operating, maintaining, and protecting the Renwick Gallery scheduled to open and to fund the higher costs of utilities, communications, and the repair and preventative maintenance of security and fire detection systems and elevators and escalators	<u>327,000</u>
Total Increase.....	\$6,902,000
Nonrecurring	<u>-100,000</u>
Net Increase, Fiscal Year 1971	\$6,802,000

Summary of the 1969 Appropriation and 1970 and 1971 Estimates

Unit	1969 Actual Amount	1970 Pos. Estimate Amount	1971 Estimate Pos. Amount	Analysis of Increases		
				Increases 1/ Pos.	Pay Program Pos.	Amount
1. Museums of Science and History (including						
Research						
Office of Director General of Museums...	5	\$208,000	7	\$240,000	10	\$317,000
Office of Exhibits...	167	2,173,000	167	2,337,000	167	2,362,000
Conservation Analytical Laboratory.....	10	116,000	11	151,000	11	154,000
Office of the Registrar	28	271,000	29	302,000	29	305,000
National Museum of History and Technology	154	1,869,000	155	2,056,000	155	2,085,000
National Museum of Natural History.....	258	3,456,000	258	3,674,000	268	3,930,000
National Air and Space Museum	41	505,000	41	570,000	45	625,000
National Zoological Park.....	0	0	0	0	0	0
National Armed Forces Museum Adv. Bd.	7	129,000	7	148,000	7	151,000
Anacostia Neighborhood Museum.....	4	42,000	8	82,000	12	159,000
Total, Museums of Science & History.....	674	8,769,000	683	9,560,000	956	13,213,000
Art Galleries						
Freer Gallery of Art	7	37,000	7	54,000	7	56,000
National Collection of Fine Arts.....	56	951,000	56	1,043,000	60	1,155,000
National Portrait Gallery.....	27	568,000	27	818,000	27	824,000
Joseph H. Hirshhorn Museum and						
Sculpture Garden	7	149,000	13	347,000	20	726,000
Total, Art Galleries	97	1,705,000	103	2,262,000	114	2,761,000
3. Research Activities (other than museums)						
Smithsonian Astrophysical Observatory...	54	1,898,000	57	2,060,000	57	2,074,000
Smithsonian Tropical Research Institute...	23	409,000	38	460,000	43	571,000
Radiation Biology Laboratory	32	399,000	36	789,000	40	998,000
Office of Ecology	5	110,000	5	133,000	8	190,000
Office of Oceanography and Limnology	18	310,000	18	336,000	26	496,000
Center for the Study of Man	1	82,000	2	113,000	5	164,000
Center for Short-Lived Phenomena	0	0	0	10,000	1	35,000
Smithsonian Research Awards.....	0	400,000	0	400,000	0	400,000
Total, Research Activities	133	3,608,000	156	4,301,000	180	4,928,000
4. Special Programs						
American Revolution Bicentennial	0	0	0	0	5	5
Environmental Sciences Program.....	0	0	0	0	600,000	400,000
Total, Special Programs	0	0	0	0	1,000,000	600,000

Unit	1969 Actual			1970 Estimate			1971 Estimate			Analysis of Increases		
	Pos.	Amount	Pos.	Amount	Pos.	Amount	Pos.	Amount	Pos.	Amount	Pay Increases	1/
5. Other Activities									Pos.	Amount		
Academic Programs	17	\$544,000	18	\$535,000	20	\$615,000	\$5,000	2	\$75,000			
Office of International Activities	6	104,000	6	112,000	6	114,000	2,000	0	0	0		
International Exchange Service	9	114,000	9	120,000	9	124,000	4,000	0	0	0		
Woodrow Wilson International Center	0	0	2	100,000	0	0	0	-2	-100,000			
Office of the Secretary	26	475,000	29	452,000	29	460,000	8,000	0	0	0		
Management Support	33	441,000	33	397,000	33	406,000	9,000	0	0	0		
Office of the Treasurer	31	558,000	31	542,000	33	607,000	5,000	2	60,000			
Division of Performing Arts	7	204,000	7	168,000	9	221,000	3,000	2	50,000			
Office of Personnel & Management Support	16	259,000	16	293,000	19	347,000	4,000	3	50,000			
Health Units	2	48,000	2	50,000	3	61,000	1,000	1	10,000			
Office of Public Affairs	12	232,000	12	237,000	12	239,000	2,000	0	0	0		
Supply Division	20	276,000	20	327,000	20	331,000	4,000	0	0	0		
Information Systems Division	8	171,000	10	163,000	14	267,000	4,000	4	100,000			
Smithsonian Institution Libraries	44	586,000	44	629,000	52	793,000	14,000	8	150,000			
Photographic Services Division	18	218,000	18	237,000	20	265,000	3,000	2	25,000			
Smithsonian Institution Press	20	577,000	21	658,000	23	740,000	7,000	2	75,000			
Total, Other Activities	2,69	4,807,000	2,78	5,020,000	3,02	5,590,000	75,000	24	495,000			
<hr/>												
6. Buildings Management Department												
History and Technology	254	2,290,000	254	2,512,000	254	2,594,000	38,000	0	44,000			
Natural History	242	2,380,000	242	2,590,000	242	2,661,000	36,000	0	35,000			
Fine Arts and Portrait Galleries	88	660,000	114	890,000	114	944,000	16,000	0	38,000			
Smithsonian Institution	59	496,000	59	546,000	59	571,000	9,000	0	16,000			
Arts and Industries	92	680,000	92	773,000	92	794,000	13,000	0	8,000			
Renwick Gallery of Art	7	42,000	7	73,000	27	254,000	1,000	20	180,000			
All Other Buildings	85	883,000	89	948,000	89	967,000	13,000	0	6,000			
Rehabilitation Projects	0	20,000	0	90,000	0	90,000	0	0	0			
Total, Buildings Management	827	7,451,000	857	8,422,000	877	8,875,000	126,000	20	327,000			
Grand Total, 'Salaries and Expenses'.....	2,000	\$26,340,000	2,077	\$29,565,000	2,448	\$36,367,000	\$531,000	371	\$6,271,000			

**SMITHSONIAN INSTITUTION
SALARIES AND EXPENSES, FISCAL YEAR 1971**

JUSTIFICATIONS

1/ Pay Increases

Need for Increase--An increase of \$531,000 is required to finance existing positions. This total is made up of funds for personnel compensation (\$494,000) and personnel benefits (\$37,000). An amount of \$400,000 of this request is for the existing staff of the Smithsonian Institution currently being financed from the appropriation "Salaries and Expenses." The other \$131,000 is for similar types of pay requirements for the employees of the National Zoological Park. The National Zoological Park employees have been financed from funds advanced from the District of Columbia, but in fiscal year 1971 it is proposed to transfer the financing directly to the Smithsonian.

The requested increase is made up of the following components:

(1) Annualization of the pay raise granted to current General Schedule employees on July 13, 1969.....	\$53,000
(2) Annualization of the Wage Grade increases granted in October 1969 and to local rate employees in the Canal Zone	\$172,000
(3) Periodic step-increases in accordance with the Government Employees Salary Reform Act of 1964 and step-increases granted to Wage Grade employees in accord with prevailing Government-wide practices will cost an additional \$255,000. This includes the portion of the fiscal year 1971 step-increases to be paid in that year and the carryover cost from fiscal year 1970. The apparent cost was determined through a position-by-position study and has been reduced to real cost by projected offsets resulting from employees being separated or promoted before receiving step-increases and from filling some positions at a lower grade step than the former incumbents held.....	\$255,000
(4) To finance the pay raise granted to the police force at the National Zoological Park by Public Law 91-34, approved June 30, 1969.....	\$40,000
(5) To finance positions at the National Zoological Park that were funded for only part of the year during fiscal year 1970.....	\$11,000

A thorough examination of Smithsonian operations has been made to determine and apply the maximum possible degree of absorption in all areas of increased pay. Absorption of an additional amount in fiscal year 1971 is impossible in the face of present workloads and nondeferrable expenses. Over three years, the Smithsonian has absorbed approximately \$400,000 of the several General Schedule and Wage pay increases. In fiscal year 1970, 78 percent of the total operating appropriations are devoted to the largely nondiscretionary costs of payroll, benefits, rent, communications, and utilities. Additional funds for pay purposes in fiscal year 1971 could be found only by forced cuts in employment or by diverting a large portion of the remaining operating funds appropriated to the Smithsonian to rectify material and equipment shortages in its museums, galleries, and laboratories.

SMITHSONIAN INSTITUTION

"Salaries and Expenses"Necessary Pay Increases Fiscal Year 1971

Organizational Unit	Annualization		Within- Grade Increases		Total
	GS Pay Raise	Wage Raise	Other		
United States National Museum:					
Office of the Director General of Museums	0	0	\$2,000		\$2,000
Office of Exhibits	\$3,000	\$2,000	20,000		25,000
Conservation Analytical Laboratory	0	0	3,000		3,000
Office of the Registrar.....	0	0	3,000		3,000
National Museum of History and Technology					
National Museum of History and Technology	3,000	0	26,000		29,000
National Museum of Natural History...	8,000	0	48,000		56,000
National Air and Space Museum,.....	1,000	1,000	3,000		5,000
National Armed Forces Museum Advisory Board.....	0	0	3,000		3,000
Anacostia Neighborhood Museum	0	0	2,000		2,000
Freer Gallery of Art.....	0	0	2,000		2,000
National Collection of Fine Arts	1,000	0	11,000		12,000
National Portrait Gallery	1,000	0	5,000		6,000
Joseph H. Hirshhorn Museum and Sculpture Garden.....	1,000	0	3,000		4,000
Smithsonian Astrophysical Observatory	3,000	0	11,000		14,000
Smithsonian Tropical Research Institute.....					
Radiation Biology Laboratory.....	2,000	6,000	3,000		11,000
Office of Ecology	1,000	0	8,000		9,000
Office of Oceanography and Limnology.	0	0	2,000		2,000
Center for the Study of Man	1,000	0	9,000		10,000
0	0	1,000			1,000
Academic Programs	0	0	5,000		5,000
Office of International Activities.....	0	0	2,000		2,000
International Exchange Service	0	2,000	2,000		4,000
Office of the Secretary	1,000	0	7,000		8,000
Management Support	1,000	0	8,000		9,000
Office of the Treasurer.....	1,000	0	4,000		5,000
Division of Performing Arts.....	0	0	3,000		3,000
Supply Division	1,000	0	3,000		4,000
Office of Personnel	1,000	0	3,000		4,000
Health Units	0	0	1,000		1,000
Office of Public Affairs.....	0	0	2,000		2,000
Information Systems Division.....	1,000	0	3,000		4,000
Smithsonian Institution Libraries	1,000	0	13,000		14,000
Photographic Services Division.....	0	0	3,000		3,000
Smithsonian Institution Press.....	0	0	7,000		7,000
Buildings Management Department.....	6,000	120,000	0		126,000
National Zoological Park	15,000	41,000	24,000	51,000	131,000
Total	\$53,000	\$172,000	\$255,000	\$51,000	\$531,000

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>7</u>	<u>3</u>	<u>10</u>
11 Personnel Compensation.....	\$ 134,000	\$ 31,000	\$ 165,000
12 Personnel Benefits.....	9,000	2,000	11,000
21 Travel & Transp. of Persons ..	12,000	2,000	14,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	1,000	0	1,000
25 Other Services	73,000	27,000	100,000
26 Supplies and Materials	1,000	1,000	2,000
31 Equipment	10,000	14,000	24,000
TOTAL.....	\$ 240,000	\$ 77,000	\$ 317,000
<u>Analysis of Total</u>			
Pay Increases.....	\$5,000	\$2,000	\$7,000
Program.....	\$235,000	\$75,000	\$310,000

OFFICE OF DIRECTOR GENERAL OF MUSEUMS

1969 Actual	\$208,000
1970 Estimate.....	\$240,000
1971 Estimate.....	\$317,000

The Office of the Director General of Museums provides program planning and review of the Smithsonian Institution's museum and exhibition activities with special emphasis on developing educational exhibits, surveying the impact of the Smithsonian on the visiting public, and providing assistance to other museums. It works cooperatively with museum professionals in the United States and abroad to increase the effectiveness of museums in the performance of their scholarly and public functions.

An increase of \$75,000 is requested to improve the educational effectiveness of exhibits and to increase museum training opportunities under the National Museum Act. An amount of \$2,000 is sought for necessary pay purposes.

Need for Increase1. Experimental exhibits and museum education (2 positions, \$43,000)

Museums teach people about real things and arrange objects and happenings in perspective. This is why they attract the public, particularly young people. This relevance is frequently lacking in other ways our young people are taught. As an example, dates are being eliminated from the study of social science because it is assumed they have no contextual value. Eliminating perspective is also a failure of informal learning media. The scale of time is lost on television where everything is instant, and nations of men can be born, live, and die, all within an hour's time.

The use of museums to stimulate interest, to create the desire to learn, and to encourage learning by the students' own efforts outside the classroom is increasingly required to strengthen faltering education at all levels. The Smithsonian's broad sweep of museums, large attendance, and comprehensive collections provide unequalled opportunities to experiment and develop new concepts of communication and museum education. The Smithsonian hopes to produce educational exhibits which will complement current elementary and secondary instructional practices. An important aspect of this effort will be to analyze the reaction and responses of the public, particularly children, to the Institution's exhibits in a constant effort to produce more effective displays.

Actions to date have included a seminar on museum communication and techniques to involve viewers with exhibits and collect information about their reactions. The visitors' survey is continuing. A summer institute on exhibit objectives and methods has been held. The Institution has explored ways of producing exhibitions on issues and concerns of the times that will permit the viewer to make choices of priorities and solutions, to see the consequences of his decisions, and to register his likes and dislikes. Several recent temporary exhibits have tried simple experimentation techniques.

Continued efforts to implement new techniques will be of great value to the Smithsonian's museums and other museums concerned with continually improving their public education efforts. Funding is requested for an experimental psychologist and an experimental exhibit specialist to plan and develop exhibition tests and to evaluate results (\$25,000). Services, supplies, and equipment, including the development and installation of test devices and the construction of exhibits, will add \$18,000.

2. Museum training under the National Museum Act (1 position, \$32,000)

Increased museum training opportunities under the National Museum Act for personnel from other museums and related organizations also will help to strengthen the public service capabilities of museums. About 1,000 requests a year are received from all parts of the United States and the world to provide training for museum personnel in the conservation of museum objects, in exhibition, in techniques of museum education, in administration and in the management of collections. National and international associations of museums urge surveys and studies of broad museum problems. They seek advice and require support for the purpose of setting standards of museum performance and professionalism in order to improve museum practices and to accredit museums. Training, standards, and accreditation are three of the principal needs of American museums described in the Belmont Report prepared by the American Association of Museums in response to former President Johnson's request. The Report recognizes the special capabilities of the Smithsonian Institution to aid these studies and provide training.

Within existing resources, the laboratories and offices of the Smithsonian have responded. More than 500 museum personnel have come from other institutions to spend from a day to a year seeking specialized advice and learning techniques. These visitors came from 35 states and 25 foreign countries. Smithsonian resources are not adequate, however, to meet the growing requirements for museum assistance and development. A program assistant (\$6,000) and \$26,000 for cooperative training grants, surveys, and studies with other museums are requested.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	258	10	268
11 Personnel Compensation.....	\$ 3,078,000	\$ 120,000	\$ 3,198,000
12 Personnel Benefits.....	231,000	9,000	240,000
21 Travel & Transp. of Persons ..	61,000	28,000	89,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	15,000	0	15,000
24 Printing and Reproduction	0	0	0
25 Other Services	90,000	32,000	122,000
26 Supplies and Materials	90,000	15,000	105,000
31 Equipment	109,000	52,000	161,000
TOTAL.....	\$ 3,674,000	\$ 256,000	\$ 3,930,000
<u>Analysis of Total</u>			
Pay Increases	\$266,000	\$56,000	\$322,000
Program.....	\$3,408,000	\$200,000	\$3,608,000

NATIONAL MUSEUM OF NATURAL HISTORY

1969 Actual	\$3,456,000
1970 Estimate.....	\$3,674,000
1971 Estimate.....	\$3,930,000

The National Museum of Natural History has been performing a comprehensive program of basic research for over 100 years. This research has been directed at obtaining a better understanding of man, plants, animals, and rocks, both recent and fossil. In pursuit of this end, in fiscal year 1969 the Museum's scientists engaged in approximately 340 research projects throughout the world and produced over 450 publications. Because the Museum directs its efforts at uncovering the basic facts, laws, and relationships that exist among plants, animals and the Earth, its work serves as a foundation for much of the applied research being carried on by others. For instance, a joint Smithsonian/National Institutes of Health program has been started to utilize the Institution's resources and collections to study the occurrence of abnormal cancer-like growths in lower animals in order to aid the search for cancer antibodies. Museum scientists have provided advice to dozens of federal agencies in subjects ranging from astronomy to pollution control; in fiscal year 1969, over 73,000 specimens from the collections were lent to scientists and researchers. In addition to their research roles, the Museum's staff develops and designs the many exhibits on public display in the Natural History building on the Mall.

In order to continue to fulfill its research responsibilities and provide assistance to the scientific community, an increase of \$200,000 is requested. This increase will be used to provide improved access to information in the collections, a major archeological/ecological project, a study of marine organisms in Panama, and a study of sea floor spreading. An additional \$56,000 are requested for necessary pay increases.

Need for Increase1. Electronic Data Processing for Collections Management

If this Museum is to continue to serve as a base for important research projects, it must make its collections and their accompanying data more accessible to the community of scholars. At the present time, information relating to these specimens can only be obtained by a time-consuming search through the collections themselves as well as through logs, journal books, and other records. This search often requires the expenditure of tens or hundreds of man-hours of professional and semiprofessional effort for a single project and leads to significant increases in project costs.

Electronic data processing (EDP) techniques provide the means by which the Museum may properly handle the increasing volume of specimens and specimen-related data. A pilot study in collections management has been underway through a two-year grant (ending June 1970) from the Department of Health, Education, and Welfare, with the collaboration of the Smithsonian's Information Systems Division. This study has determined that by the application of EDP techniques considerable savings in time and effort and significant improvements in the quality of research can be achieved.

It is proposed that EDP techniques be applied to those collections that are regarded as being of unusual importance because of their use, size, and relevance to research projects being conducted within the Smithsonian and elsewhere. Four projects of particular usefulness are the following.

Data bank for the collection of fossils (3 positions, \$30,000)

The collection of fossils in the Department of Paleobiology is the largest in the United States, and one of the most important in the world. This collection is used by scientists and researchers both here and abroad in studies involving the evolution of animal and plant organisms, locations, adaptation, and for comparative analysis of species of plants and animals. This information is essential, for instance, in oil exploration. No comprehensive study of fauna fossils can be made without reference to this collection, yet no catalog or card file on it is available. As a result, the scientific community cannot make full use of this material. Three museum technicians (\$20,000) and \$10,000 for supplies, equipment, and other services are required to establish a data bank of specimens. After the establishment of this data bank, the present staff would maintain and update the computer file as additional specimens are collected and identified.

Type register of botanical collections (1 position \$20,000)

A herbarium is a botanical Bureau of Standards, for the results of any botanical research project, whether it be a breeding program, an investigation into the physiology of forest trees, or an inquiry into processes of evolution, may be worthless if the researcher does not know the species with which he is dealing. The criteria for assigning a plant to a given species ultimately involves comparison with a single specimen known as the "type" which is the "standard" for that particular species or subspecies. Since there is a type specimen, not only for every species of flowering plant but also for every variety, the total number of types is very high--approximately 60,000 in the United States National Herbarium in the Smithsonian alone. Other types are scattered throughout the herbaria of the world.

The type register of the Smithsonian's Department of Botany is the first attempt to compile a catalog of types along with their locations and other information needed by the botanist. Important botanical institutions in the United States and abroad, such as the New York and Missouri Botanical Gardens, the Royal Botanic Gardens in Kew, England, and the National Museum of Canada, are cooperating in planning for, and will participate in, this project by interchanging information with the Smithsonian. A museum technician (\$9,000) and \$11,000 for travel, supplies, equipment, and other services are requested in order to establish a type register of botanical collections.

Data bank for the collections of invertebrates (3 positions, \$35,000)

The extensive collections maintained by the Department of Invertebrate Zoology are a potential source of an enormous amount of basic information on the distribution and ecology of the largest bulk of marine animals, the invertebrates. In their present state, these collections are essential to zoologists studying these organisms, but their utility as an environmental information resource has barely been tapped. The computer data base on crustacea, nematode worms, and cephalopod mollusks would first be broadened and then files for collecting station and ecological data relating to these collections would be developed. The completion of this project would enhance the value and use of the collection as an information resource to oceanographic investigations, including studies of food resources. Three museum technicians (\$17,000) and \$18,000 for supplies, equipment, and other services are requested for this project.

Data bank for higher animals and endangered species (1 position, \$20,000)

The Department of Vertebrate Zoology has more than 20,000 species of birds, mammals, reptiles, amphibians, and fish in its collections. For several years, data on some specimens of both previously accessioned birds and newly acquired fish, reptiles, amphibians, birds, and mammals have been cataloged on paper tape output typewriters in a catalog format compatible with computer processing.

Data on seabirds have already been stored, as well as on some specimens of rare and endangered species. Seabirds are important because they are a discrete ecological unit of animals which range widely over vast expanses of ocean. Their distribution and habits are of use to commercial and sport fishermen in locating exploitable fish schools as well as to scientists who are attempting to understand the complex interrelationships of oceanic life. However, the distribution and abundance of most species of seabirds remains unknown because the large volume of data on identified museum specimens cannot be easily processed by hand.

It is proposed to continue the computer entry of selected bird and mammal data for research use and to investigate the feasibility of storing data from other vertebrate collections in the computer. A museum specialist (\$9,000) and \$11,000 for supplies, equipment, and other services are needed to extend this coverage on a worldwide basis in response to the needs for current research and for enforcement of the Rare and Endangered Species Act passed in 1969. In addition, published catalogs of vertebrates in the National Collections would be updated since they range in age from five to 27 years, and then distributed to research scientists in this country and abroad.

2. Special Projects in Archeology, Biology, and Marine Sciences

The following projects have been chosen because of their importance to the scientific community and their relevance to current problems.

The Seistan project is a major interdisciplinary program to study an area that has had drastic changes in its climate over a period of several hundred years. A study of this area hopefully will reveal the social and economic stresses that occurred in this community and the reasons the community was unable to adapt to the changing climate.

The study of invertebrate animals in Panama is an attempt to understand how natural or manmade stresses affect the composition, distribution, and relationships of various species of invertebrate animals. Such a study would be of value in the evaluation of conditions that may cause long-term changes in the environment.

The study of sea floor spreading and deep-sea rocks is basic to an understanding of the geological behavior of the earth's crust. This project is significant because crustal movements have been shown to cause uprisings of large masses of land, alterations in coastlines, and many times, violent earthquakes.

Major archeological and ecological project in Seistan (\$40,000)

Seistan is the region of southwestern Afghanistan and southeastern Iran where large moving sand dunes, extensive salt flats, strong winds from 40 to 120 miles per hour, and temperatures from 130° F in summer to below 0° F in winter make the region almost uninhabitable except for the narrow valley of the Helmand River. However, from at least the 6th century B.C. until the 15th century A.D., this region of approximately 10,000 square miles was extensively populated and had been described as the "grainery of Asia." This is evidenced today by the ruins of dozens of fortified farm "communes," two cities, each nearly a mile square, and complex water distribution systems.

An intensive study of this site is of particular importance since it can reveal the basic reasons why a relatively complex and sophisticated society was unable to adapt to a change in its environment. Preliminary studies and field investigations begun in 1964 have been made to determine the feasibility of initiating a major ecological project. The nature of the ancient habitations in this region

clearly indicates the need for a broadly based study not limited simply to archeology but including extensive studies in ancient and contemporary hydrography and agriculture, together with basic research on geomorphology, climate, botany (especially archeobotany and palynology), zoology, and limnology of this region--all being closely interrelated factors in the ancient society which developed in this region and flourished until the 15th century.

This project will use the present staff of the National Museum of Natural History; however, \$40,000 are requested for support in the form of travel, equipment, supplies, and other services. The research program would be conducted in cooperation with the Afghani Government, the Kabul University Research Center, the Cartographic Institute, and the Helmand Valley Authority of Afghanistan. Scientific staffs from other institutions such as Harvard University, the University of Michigan, and Washington University in St. Louis will also participate in this project.

Invertebrate animals in coastal areas of Panama (1 position, \$30,000)

Little information is available on the invertebrates occurring on each side of the isthmus of Panama. This project would initiate fundamental studies on species composition, distribution, and the ecology of marine invertebrates in this area. Panama is of particular interest not only because of the possibility of vast fauna changes as a result of the construction of the proposed sea level canal, but also because it provides an opportunity to study closely related organisms inhabiting adjacent, but distinctive, habitats in tropical areas. The Gulf of Panama is an area of high productivity and upwelling, whereas the environment of the Caribbean appears to be more stable. Success of this project is dependent upon cooperation between the Museum, including its divisions of crustacea and mollusks, and the Smithsonian Tropical Research Institute.

The professional staff for this project will be drawn from the Museum. However, a scientific illustrator (\$6,000) will be needed to devote full time to the project. An additional \$24,000 are requested for support in the form of travel, equipment, supplies, and other services.

Sea floor spreading and the origin of deep-sea rocks (1 position, \$25,000)

This project will involve the study of the origin of deep-sea rocks and the establishment of a systematic collection of such rocks. The information in such a collection would be of importance in determining, for instance, changes in coastlines and shifts in the earth's crust that cause stresses leading to earthquakes. Also, since knowledge about rocks from the deep-sea floor is relatively new, the Museum's collection of deep-sea rocks (which is already one of the largest in the world) serves as a unique resource for understanding and exploiting the seas. Models of sea floor spreading and continental drift now being developed by a number of federal and private institutions are closely tied to the availability of a comprehensive collection and to accurate identifications of deep-sea rocks. The proposed program would permit the participation by Smithsonian scientists in voyages of ocean research vessels and other ships in order to do deep-sea sampling and to conduct laboratory studies and analyses of these samples.

A petrologist (\$13,000) and \$12,000 for travel, equipment, supplies, and other services support are requested for this project.

NATIONAL AIR AND SPACE MUSEUM

1969 Actual	\$505,000
1970 Estimate.....	\$570,000
1971 Estimate.....	\$625,000

The National Air and Space Museum is the nation's center for exhibition, education, and research in the history and principles of air and space flight. It maintains the world's greatest collection of objects related to flight and is a unique resource for research in aviation and aerospace history, in flight science and technology, in the impact of man-flight on the cultural life and economy of America, and in the pioneering efforts of early aviators and astronauts. This growing collection now consists of more than 200 technically and historically important aircraft, more than 300 engines, 1,000 air and spacecraft models, and a vast array of related equipment. Supplementing the physical specimens are extensive holdings of records resulting from air and space research, development and operations, films, art works, and memorabilia that are available to students, historians, biographers, technicians, and engineers. Drawing upon these resources, the Museum produces exhibits portraying the past, present, and future of aeronautics in America.

An increase of \$50,000 is requested to continue the program of acquiring, preserving, and displaying important space objects. An additional \$5,000 are requested for necessary pay increases.

Need for Increase--The National Air and Space Museum was originally established as a museum concerned with aviation alone. The Act of July 19, 1966, extended the Museum's responsibility to include space history and technology. Under the provisions of the 1967 Agreement on Space Artifacts between the Smithsonian Institution and the National Aeronautics and Space Administration, the Museum has acquired priceless objects marking the successful accomplishments of the United States' space program.

The most significant of these specimens are placed on exhibit; for example, Apollo and Surveyor spacecraft, Apollo spacesuits, Saturn rocket engines, and a one-pound lunar rock from the Apollo 11 flight. The remainder of the exhibitable specimens are loaned to other museums, and through the United States Information Agency and the Department of Commerce for exhibit in U.S.-sponsored exhibits abroad. These exhibits represent the rapidly evolving technology of space flight. With the successful lunar landings in 1969, visitor attendance tripled in the Fall of 1969 compared with 1968. More than two million persons are now visiting air and space displays annually.

In view of wide public discussion as to the extent to which the United States may be involved in future space missions--whether there will be orbiting research laboratories, recoverable space boosters, extensive lunar explorations, or a landing on Mars--the Smithsonian has a unique opportunity to educate the public by exhibits of actual space material. Such exhibits require not only the display of objects but also an interpretation of the accomplishments and the resulting benefits to all mankind.

The collection of spacecraft and related materials is continually increasing. This program cannot be continued successfully within the Federal appropriation available to the Museum. Research and documentation of these artifacts for exhibit require specialized curatorial skills not now available. Because of the need for inspection of available materials stored in many locations throughout the country, considerable travel is required. Many objects are large and heavy, and costly to ship, and they require special services, supplies, and equipment for protection.

In fiscal year 1968, the NASA funded initial operations of the space artifacts program in the amount of \$199,000. This was a one-time contract for one-year budget. Funds were stretched over a second year in fiscal year 1969. These funds are no longer available. To meet the responsibilities of the NASA/Smithsonian agreement and to properly exhibit and display these artifacts to the American public, a minimum requirement of \$34,000 is needed for a curator, a secretary, a research assistant, and a clerk-typist. An additional \$16,000 are requested for travel, transportation of objects, supplies and materials, equipment, and other services.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>41</u>	<u>4</u>	<u>45</u>
11 Personnel Compensation.....	\$ 356,000	\$ 37,000	\$ 393,000
12 Personnel Benefits.....	27,000	2,000	29,000
21 Travel & Transp. of Persons ..	14,000	2,000	16,000
22 Transportation of Things	25,000	7,000	32,000
23 Rent, Comm. and Utilities.....	3,000	0	3,000
24 Printing and Reproduction	5,000	0	5,000
25 Other Services	69,000	2,000	71,000
26 Supplies and Materials	35,000	2,000	37,000
31 Equipment	<u>36,000</u>	<u>3,000</u>	<u>39,000</u>
TOTAL.....	\$ 570,000	\$ 55,000	\$ 625,000
<u>Analysis of Total</u>			
Pay Increases.....	\$ 40,000	\$ 5,000	\$ 45,000
Program.....	\$ 530,000	\$ 50,000	\$ 580,000

NATIONAL ZOOLOGICAL PARK

1969 Actual.....	\$2,528,000*
1970 Estimate.....	\$2,814,000*
1971 Estimate.....	\$3,125,000

The National Zoological Park was founded by Congress in 1889 for the "advancement of science and the instruction and recreation of the people." To accomplish this mission, the Zoo exhibits a broad zoological collection of animals from all parts of the world in natural surroundings; maintains an information and education program for the benefit of the visiting public from all over the United States; and promotes scientific research, including biomedical programs, for advancement of science and the benefit of the animals so that visitors can enjoy them in prime health. To accomplish this mission, the Zoo is organized in five departments: Office of the Director; Operations and Maintenance; Living Vertebrates; Scientific Research; and Animal Health.

For fiscal year 1971, a program increase of \$180,000 is requested to establish a planning and design unit for construction and repair projects; to staff and operate the new Hospital-Research Building and other facilities; to operate the new heating plant and incinerator; to replace ground and animal care equipment items; to augment the animal purchase and food funds; and to install a system for adequate animal health records. An additional \$131,000 are required for necessary pay increases.

These increases are distributed in the following table. Specific details of organization, functions, and budget requirements are presented on the following pages.

(In thousands of dollars)	1969		1970		1971	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Office of Director.....	60	\$661	60	\$799	64	\$917
Operations and Maintenance..	97	924	99	989	100	1,099
Living Vertebrates.....	77	827	77	888	77	939
Scientific Research	5	59	5	68	6	79
Animal Health.....	5	57	5	70	5	91
Total.....	<u>244</u>	<u>\$2,528</u>	<u>246</u>	<u>\$2,814</u>	<u>252</u>	<u>\$3,125</u>

The number of zoo visitors increases annually. In 1969, approximately 5 million people visited the Zoo. A significant number of these visitors are in organized school groups from the metropolitan area and more distant points. The Zoo is increasingly used as a teaching site by teachers of biology and other natural sciences. The increased visitor load increases requirements for patrols, trash clean-up, washroom sanitation, first aid, and other services.

Continued improvements have been made in the collection of animals, which is one of the world's largest. As the collection evolves, the Zoo will present exhibits of greater visitor interest and, at the same time, give greater emphasis to species and groups which effectively demonstrate significant points of animal adaptations and behavior. Greater emphasis will be given also to increasing zoo births by pairing unmated animals and maintaining breeding groups. Not only is this good conservation practice; it is also essential in view of the increasing scarcity of many species and the high prices that must be paid to acquire them.

Construction and improvement programs have progressed with the following results. The east-west perimeter road, eliminating through traffic in the main section of the Park was completed in June 1964. The incinerator for the sanitary disposal of trash and waste materials was completed in June 1964. In February 1965, the remodeling and renovation of the Bird House was accomplished. In

*Included in the District of Columbia budget.

June 1965, the new Great Flight Cage and two parking lots for 245 visitor cars were completed. A parking lot which accommodates 260 visitor cars and 24 buses was completed October 1965. Sewer construction, eliminating most of the pollution discharged into Rock Creek, was completed in June 1967. The remaining discharge, chiefly from waterfowl ponds, will be eliminated by construction funds appropriated in fiscal year 1968. The Deer Area was completed in November 1965. The Hardy Hoofed-Stock Area was completed in August 1966, and the Delicate Hoofed-Stock buildings No. 1 and 2 were completed in January 1967. The construction of the new Hospital-Research Building, started in June 1968, was completed in January 1970.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	246	6	252
11 Personnel Compensation.....	\$ 2,157,000	\$ 164,000	\$ 2,321,000
12 Personnel Benefits.....	165,000	12,000	177,000
21 Travel & Transp. of Persons ..	6,000	5,000	11,000
22 Transportation of Things	3,000	0	3,000
23 Rent, Comm. and Utilities.....	86,000	12,000	98,000
24 Printing and Reproduction	1,000	0	1,000
25 Other Services	39,000	3,000	42,000
26 Supplies and Materials	302,000	43,000	345,000
31 Equipment	55,000	72,000	127,000
TOTAL.....	\$ 2,814,000	\$ 311,000	\$ 3,125,000
<u>Analysis of Total</u>			
Pay Increases.....	\$112,000	\$131,000	\$243,000
Program.....	\$2,702,000	\$180,000	\$2,882,000

National Zoological Park
Office of Director

The Office of the Director plans and directs all Zoo programs. It also coordinates the activities and functions of the Pathology Office; directs the protective service program; develops and maintains the Zoo's educational program; and furnishes general administrative services. The capital improvement program and the animal acquisition program are under the direction of this office. The Pathology Office performs histopathologic and gross pathologic diagnosis of disease in the animal collection. The protective services program enforces laws and regulations for the protection and safety of visitors, animals, and Government property. The education program is being implemented through informative labels, exhibits, lectures, guided tours, and cooperative programs with local school systems. Administrative services include personnel, budget, fiscal, supply, and procurement functions.

An increase of \$62,000 is requested to establish a planning and design unit for the construction program; to staff the Hospital-Research Building; and to cover increased costs of travel, utilities, contractual services, supplies, and equipment. An additional increase of \$56,000 is sought for necessary pay purposes.

Need for Increase--Funds for major new construction were not appropriated in fiscal years 1968, 1969, or 1970. Funds were appropriated, however, for continued planning and for essential renovation and repairs to existing facilities. Many small and medium-sized projects are involved requiring careful study, design, preparation of specifications, technical review, and coordination. To provide these services, it is requested that a small Planning and Design Unit be established, consisting of three new positions (an architect designer, a draftsman, and a clerk-typist) plus the presently employed staff engineer. This unit will coordinate all construction projects and prepare criteria for architectural design of major structures. Major contract drawings and specifications will continue to be prepared by architects, contracted for by the General Services Administration. The unit will design all miscellaneous, supplementary structures and facilities, such as small buildings, shelters, pens, runs, fences, and guard rails, and outdoor cages to conform to and be compatible with major completed and planned construction in the Master Plan. These three positions, with funds for travel, supplies, and equipment, will cost \$28,000.

The Hospital-Research Building was completed and occupied in January 1970. A library will be located in this new building to serve Zoo personnel, students, and researchers. The library, which will consist of book stacks and a reading room, will specialize in general natural history, taxonomy, animal behavior, and veterinary medicine. It will require the specialized training and abilities of a librarian. The librarian will also have responsibility for the medical and pathological information storage and retrieval system. Funds for books, supplies, and equipment are included in this request for \$11,000.

During the summer of 1969, the first phase of conversion of the heating plant from coal to gas was accomplished. The second phase, and the conversion of the incinerator to gas, is planned to be accomplished during the summer of 1970. Funds in the amount of \$12,000 are requested for utilities to operate the new heating plant.

An additional \$11,000 are requested for travel, largely in connection with the animal acquisition program, and for contractual services, supplies, and equipment associated with Director's Office operations. For the most part, these funds are required to meet rising costs.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	60	4	64
11 Personnel Compensation.....	\$ 592,000	\$ 81,000	\$ 673,000
12 Personnel Benefits.....	44,000	6,000	50,000
21 Travel & Transp. of Persons ..	6,000	5,000	11,000
22 Transportation of Things	1,000	0	1,000
23 Rent, Comm. and Utilities.....	86,000	12,000	98,000
24 Printing and Reproduction	1,000	0	1,000
25 Other Services	25,000	3,000	28,000
26 Supplies and Materials	38,000	6,000	44,000
31 Equipment	6,000	5,000	11,000
TOTAL.....	\$ 799,000	\$ 118,000	\$ 917,000
<u>Analysis of Total</u>			
Pay Increases	\$46,000	\$56,000	\$102,000
Program.....	\$753,000	\$62,000	\$815,000

National Zoological Park
Operations and Maintenance Department

The Operations and Maintenance Department has responsibility for all plant maintenance and supporting services. These include:

1. Operational services: automotive maintenance; operation of trucks and heavy equipment; trash collection; sweeping of streets and walks; snow removal; and janitorial services.
2. Maintenance: maintaining and repairing 14 major buildings and a wide range of cages and other facilities. This unit also performs renovation and minor construction, and builds nest boxes, shipping crates, exhibits, and other needed items.
3. Grounds: maintaining and improving the 156 acres of trees, lawns, shrubs, flower beds, and indoor plantings.
4. Air-heating: maintaining all heating plants and air conditioning in the buildings throughout the Park.

An increase of one position and \$68,000 are requested to provide for workload increases in maintenance and operational services. An additional \$42,000 are requested for necessary pay increases.

Need for Increase--At present there is only one steamfitter available to maintain the pipes and equipment of the Zoo's heating system. Extensive overhaul of the old steam distribution system is necessary, of which only 25 percent has been completed. The present work backlog of 6,762 man hours requires the addition of one position (\$7,000).

Existing funds are not adequate to keep pace with rising supply costs and the increased maintenance requirements of additions to the physical plant, such as the new Hospital-Research Building. Additional building and custodial supplies and materials of all types are required (\$22,000).

For the past several years, the Zoo has been placing equipment items on planned replacement cycles. An increase of \$39,000 in the equipment allotment will allow additional equipment in the replacement cycle as well as cover rising costs. Also included are funds to replace the front-end-loader to be used by the transportation section throughout the Park, and to purchase a turf-type tractor with backhoe to be used by the grounds division.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>99</u>	<u>1</u>	<u>100</u>
11 Personnel Compensation.....	\$ 781,000	\$ 46,000	\$ 827,000
12 Personnel Benefits.....	62,000	3,000	65,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	14,000	0	14,000
26 Supplies and Materials	115,000	22,000	137,000
31 Equipment	<u>17,000</u>	<u>39,000</u>	<u>56,000</u>
TOTAL.....	\$ 989,000	\$ 110,000	\$ 1,099,000
<u>Analysis of Total</u>			
Pay Increases	\$28,000	\$42,000	\$70,000
Program.....	\$961,000	\$68,000	\$1,029,000

National Zoological Park
Department of Living Vertebrates

The Department of Living Vertebrates is responsible for approximately 3,200 animals of over 1,100 species, representing one of the largest and most varied collections of exotic animals in existence. To support this collection, the Department conducts an animal care program involving feeding, cleaning of cages, and exhibition. Included in the animal care program are pest control efforts to eliminate insects and rodents and a commissary program for ordering, receiving, storing, preparing, and delivering animal food, as well as raising special food items. In addition to these major activities, the staff collaborates with the Animal Health Department, the Scientific Research Department, and the Pathology Office to improve the medical treatment of animals, collection of medical data, evaluation of medical programs, and development, investigation, and support of various research programs.

An increase of \$23,000 is requested to cover the rapidly rising costs of animals, animal food, and sundry and uniform supplies, as well as to establish an equipment replacement allotment. An additional increase of \$28,000 is sought for necessary pay increases.

Need for Increase--The animal acquisition program is aimed at providing an adequate number of interesting and unusual specimens for a well-balanced and educational zoological collection. The present allotment for the acquisition of animals, which includes purchase prices and/or shipping charges, is \$25,000. An increase of \$8,000 is requested. There has been no increase in these funds since 1965. Animal prices have risen rapidly in the past five years. A purchase of a single group of rare deer cost \$19,000. In the past, the Zoo has relied heavily on gifts and exchanges. It is rarely possible, however, to stipulate the species, ages, sex, and condition of gifts; and exchanges are dependent on what other zoos have in surplus. These two methods tend to yield an unbalanced collection. The Zoo's collection objectives can be fulfilled only by purchasing animals of selected species.

Additional funds are requested for the food allotment to provide for steadily rising food prices. Approximately \$126,000 is now available to purchase animal food. The Commissary makes every effort to obtain surplus food at reduced prices, but this is frequently of low quality. The replacement prices for sundry supplies and uniforms also have risen sharply. Funds in the amount of \$13,000 are requested to cover the increased cost and usage of these items.

There are approximately 200 pieces of equipment all under \$1,000 each, located in various buildings, used for the care of animals. Funding of \$2,000 is requested to establish an efficient schedule of equipment replacement.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>77</u>	<u>0</u>	<u>77</u>
11 Personnel Compensation.....	\$ 668,000	\$ 26,000	\$ 694,000
12 Personnel Benefits.....	50,000	2,000	52,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	2,000	0	2,000
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	0	0	0
26 Supplies and Materials	142,000	13,000	155,000
31 Equipment	<u>26,000</u>	<u>10,000</u>	<u>36,000</u>
TOTAL.....	\$ 888,000	\$ 51,000	\$ 939,000
<u>Analysis of Total</u>			
Pay Increases	\$30,000	\$28,000	\$58,000
Program.....	\$858,000	\$23,000	\$881,000

National Zoological Park
Scientific Research Department

The Scientific Research Department undertakes studies of animal behavior, reproduction, and nutrition. The National Zoological Park collection is a major scientific resource. For this reason, facilities and assistance are often provided to scientists from such federal agencies as the National Institutes of Health as well as from universities. The Zoo's own scientific studies add to man's understanding of the living world. Investigations undertaken in the Zoo and in the field have yielded numerous scientific publications. The work of the Scientific Research Department results in improved care of animals in the collection, as reflected in their well-being and reproduction. This work is also of benefit to other zoos and animal collections. In addition, the Scientific Research Department is of assistance to other organizations, including foreign governments concerned with wildlife management and conservation. The Department provides training and research opportunities for graduate students.

An increase of \$9,000 is requested to provide one position for the care of the animals under study in the laboratories. An additional \$2,000 are requested for necessary pay increases.

Need for Increase--The Hospital-Research Building was completed and occupied in January 1970. Planned research on the maintenance of mammals and birds in captivity can now be started. The research personnel using this facility will include guest investigators and graduate students from those laboratories and universities coordinating their research program with the National Zoological Park. Included are the Armed Forces Institute of Pathology, the George Washington University, the University of Pennsylvania, and others. One of the central problems in the maintenance of captive vertebrates concerns the propagation of rare and endangered species. The successful breeding of rare mammals requires that special research be conducted on space requirements, nutritional requirements, and reproductive physiology. As the number of animals under study in the laboratories increases, an animal keeper will be required to assure that the best care is given to these animals.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>5</u>	<u>1</u>	<u>6</u>
11 Personnel Compensation.....	\$ 60,000	\$ 8,000	\$ 68,000
12 Personnel Benefits.....	5,000	1,000	6,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	0	0	0
26 Supplies and Materials	1,000	1,000	2,000
31 Equipment	<u>2,000</u>	<u>1,000</u>	<u>3,000</u>
TOTAL.....	\$ 68,000	\$ 11,000	\$ 79,000
<u>Analysis of Total</u>			
Pay Increases	\$3,000	\$2,000	\$5,000
Program.....	\$65,000	\$9,000	\$74,000

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National Zoological Park
Animal Health Department

The Animal Health Department is responsible for the maintenance of the health of the animal collection of 3,200 living specimens of 1,100 species. This requires: clinical treatment of illnesses and injuries; prophylactic procedures; using clinical pathological data to assist in diagnosis of diseases and formulation of effective treatment regimens; and collaboration in biomedical research directed toward a broader knowledge of disease processes in exotic animals and in their treatment. The staff of the Animal Health Department consults and collaborates with investigators from governmental agencies and academic institutions in the solution of problems of mutual interest.

An increase of \$18,000 is requested to establish an efficient data recording system and funds for supplies and other equipment to meet increased costs. An additional increase of \$3,000 is sought for necessary pay increases.

Need for Increase--The knowledge of disease in exotic animals stands in about the same position as did human medicine more than 100 years ago. A data storage and retrieval system will provide for maximum usefulness of scientific and medical findings. The Animal Health Department records approximately 4,000 entries per year on the medical records. The Pathology Office performs approximately 600 necropsies per year, which requires the entry of approximately 2,000 diagnoses. There are approximately 10,000 technical entries recorded on cards each year. The recorded data is now of limited value, because of the time required to locate information. Funds are requested to establish a Termatrix system. This is a simple, rapid system using light showing through minute coded holes in a card to locate and correlate data. The system will be maintained in the Hospital-Research facility and will be used by all scientific activities. It will allow immediate retrieval of specific records and permit correlation and statistical analysis of the recorded data. An amount of \$15,000 is requested for this purpose.

An increase of \$3,000 is requested to cover the costs of medicine, glassware, chemicals, etc., used by the Animal Health Department and to purchase medical equipment used in animal care and treatment.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>5</u>	<u>0</u>	<u>5</u>
11 Personnel Compensation.....	\$ 56,000	\$ 3,000	\$ 59,000
12 Personnel Benefits.....	4,000	0	4,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and R ^e production	0	0	0
25 Other Services	0	0	0
26 Supplies and Materials	6,000	1,000	7,000
31 Equipment	<u>4,000</u>	<u>17,000</u>	<u>21,000</u>
TOTAL.....	\$ 70,000	\$ 21,000	\$ 91,000
<u>Analysis of Total</u>			
Pay Increases.....	\$ 5,000	\$ 3,000	\$ 8,000
Program.....	\$ 65,000	\$ 18,000	\$ 83,000

ANACOSTIA NEIGHBORHOOD MUSEUM

1969 Actual	\$42,000
1970 Estimate.....	\$82,000
1971 Estimate.....	\$159,000

The Anacostia Neighborhood Museum opened in September 1967 in one of Washington, D. C.'s deteriorated urban communities. This area has dilapidated housing, an exploding school population, low income and unemployed persons, and other characteristics of blighted urban areas in cities across America. The Museum was designed to enhance the quality of life in this community by offering meaningful learning experiences to the local residents, by interpreting the history and contributions of the community, and by involving children and adults in challenging opportunities for creative self-expression. Since opening, 117,000 children and other community residents have enjoyed and been educated by the Museum's exhibits, classes, lectures, films, and other projects designed for maximum public participation. Over 27,000 metropolitan school children toured the exhibit "The Sage of Anacostia," a graphic history of the life of Frederick Douglass.

To meet this enthusiastic response, an increase of \$75,000 is requested for the Museum for classroom and workshop activity, overall program administration and general costs of operations. An additional \$2,000 are requested for necessary pay increases.

Need for Increase--Within the past year, community demands on the Museum have increased steadily. The staff has worked closely with the Anacostia Model School Project, and the Museum's education program manager was elected to its Council and Governing Board. As a result of meetings held with principals, counselors, Community Reading Assistants, Head Start personnel, and special groups of teachers, many requests for specific workshops and classes have been made. Among those requests that have been met are: a four-week series of programs on Afro-American history for two sixth-grade classes; an art appreciation workshop for local teachers and Community Reading Assistants that focused on the making of paints from ordinary household items; the training of local recreation staff in ceramics and pottery; a series of International Hours for preschoolers which included the sampling of food from other countries; and story hours, films, and slide shows. Much of this work has been accomplished through the use of part-time and volunteer help. Many requests cannot be met. Two full-time instructors are requested to plan and conduct classes and workshops for children and adults in the community (\$16,000).

With increased public interest and participation in the Museum's activities, an assistant director and an additional clerk-typist are required. These employees will help plan and evaluate programs; assist with budget, personnel, and procurement matters; do research on exhibits' topics appropriate to community needs; and help with a large correspondence workload. Letters are received almost daily from other museums, community groups, and concerned citizens seeking advice and technical assistance in undertaking similar museums in their areas. The assistant director will be involved personally with these groups and will act as a liaison between the Anacostia Museum and other museums to keep abreast of museum education trends and apply those that are applicable and valuable to Anacostia's needs. Funds in the amount of \$14,000 are requested for these two employees.

Funds are also required for general expenses as private funding for regular operations declines. The Museum requires \$45,000 for space rental, maintenance and custodial supplies, exhibit and classroom supplies and materials, and a small amount of office and exhibit equipment.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>8</u>	<u>4</u>	<u>12</u>
11 Personnel Compensation.....	\$ 59,000	\$ 30,000	\$ 89,000
12 Personnel Benefits.....	5,000	2,000	7,000
21 Travel & Transp. of Persons ..	2,000	1,000	3,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	7,000	23,000	30,000
24 Printing and Reproduction	0	0	0
25 Other Services	2,000	0	2,000
26 Supplies and Materials	6,000	20,000	26,000
31 Equipment	1,000	1,000	2,000
TOTAL.....	<u>\$82,000</u>	<u>\$ 77,000</u>	<u>\$159,000</u>
<u>Analysis of Total</u>			
Pay Increases	\$4,000	\$2,000	\$6,000
Program.....	\$78,000	\$75,000	\$153,000

NATIONAL COLLECTION OF FINE ARTS-RENWICK GALLERY OF ART

1969 Actual.....	\$951,000
1970 Estimate.....	\$1,043,000
1971 Estimate.....	\$1,155,000

The National Collection of Fine Arts was established "to encourage the development of contemporary art and to effect the widest distribution and cultivation in matters of such art". To meet this responsibility, the NCFA acquires, exhibits, and makes available for study a significant collection of art, and related documentary materials, produced by artists of the United States. At present, some 11,000 paintings, sculptures, and decorative art objects are included in its exhibits and reference collections. Administered by the NCFA, the Renwick Gallery of Art is planned as an exhibition center of American crafts and design, and as a visitor center related to Blair House and the White House. Housed in the building originally designed for the Corcoran Gallery by James Renwick, Jr., it preserves an architectural landmark which simultaneously can have an important functional use in an area of Washington that is a center of attraction for public and official visitors.

An increase of \$100,000 is requested to prepare the Renwick Gallery for a public opening in fiscal year 1971. Funds in the amount of \$12,000 also are requested for necessary pay for the National Collection of Fine Art's present staff.

Need for Increase--Approximately \$2,000,000 of appropriated funds have been invested in the restoration and renovation of the building. According to the present schedule, this work will be sufficiently completed in fiscal year 1971 to permit an inaugural exhibition by mid-year. The Smithsonian is requesting an appropriation of \$300,000 of construction funds to complete the restoration project. Without concurrent provision of operating funds, however, it is likely that the building will remain closed. The continued efforts by the National Collection of Fine Arts to develop its public and scholarly functions, do not permit a major redirection of funds to the Renwick, although substantial staff time will be applied to this need.

The present high priority efforts to ready the physical structure for opening to the public require a companion effort to provide outstanding exhibits. The staff must select and acquire basic furnishings and equipment appropriate to the building including display cases and other Gallery furniture; seek out and obtain through gifts and purchases an outstanding American crafts and design collection; and initiate work on an exhibition program including obtaining commitments from donors and lenders of art. A number of exhibitions will be staged each year, drawing on the varied collections of the Smithsonian as well as other private or public collections.

With regard to likely official uses of the Gallery, the great reception room across the width of the building is potentially one of the finest in America. This room, the stairs leading to it, and an adjacent octagon room will be furnished to evoke the spirit of the 1860's and 70's, and will be an appropriate background for the uses of the President, visiting heads of state, official presentation activities of the Smithsonian, such as for important donors, and for other similar uses.

To permit preparing, opening, and maintaining the exhibition and other programs of the Gallery, the following additional staff and other resources are requested. An exhibits specialist, two museum technicians, and a clerk-typist are the basic personnel required (\$21,000). These would assist the National Collection of Fine Arts curatorial staff. Support funds are required for travel to obtain and ship collections, for services to prepare exhibits, and for the purchase of exhibit equipment and objects (\$79,000).

<u>Object Class</u>	<u>1970 Base</u>	<u>1970 Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>56</u>	<u>4</u>	<u>60</u>
11 Personnel Compensation.....	\$580,000	\$ 31,000	\$611,000
12 Personnel Benefits.....	43,000	2,000	45,000
21 Travel & Transp. of Persons...	25,000	1,000	26,000
22 Transportation of Things.....	17,000	2,000	19,000
23 Rent, Comm. and Utilities.....	14,000	0	14,000
24 Printing and Reproduction.....	1,000	0	1,000
25 Other Services.....	174,000	27,000	201,000
26 Supplies and Materials.....	25,000	2,000	27,000
31 Equipment.....	106,000	47,000	153,000
42 Grants	<u>58,000</u>	<u>0</u>	<u>58,000</u>
TOTAL	<u>\$1,043,000</u>	<u>\$112,000</u>	<u>\$1,155,000</u>
<u>Analysis of Total</u>			
Pay Increases.....	\$43,000	\$12,000	\$55,000
Program	\$1,000,000	\$100,000	\$1,100,000

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

1969 Actual	\$149,000
1970 Estimate.....	\$347,000
1971 Estimate.....	\$726,000

The Joseph H. Hirshhorn Museum and Sculpture Garden will display the collection of fine art donated by Joseph H. Hirshhorn to the United States for the benefit of the people. The Hirshhorn Collection is a unique collection of sculpture and paintings. The sculptures range historically from antiquity to the works of today's young creators. Its fine representation of African art is highlighted by a superb group of Benin bronzes. The Collection's paintings focus on the 20th century. From the works of precursors such as Thomas Eakins and Winslow Homer to the canvases of today, the course of painting in America is covered in depth. Complementing the American section is a strong selection of paintings by modern European masters and young contemporaries.

An increase of \$375,000 is requested to continue the preparation of the Collections. An additional \$4,000 are requested for necessary pay increases.

Need for Increase-- Plans and specifications for the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden have been revised to scale down the project to insure that it does not exceed the available funds. A bid award is expected in February 1970 with construction to begin in March. Based on this information, a thorough review of work necessary to complete the Museum and place it in operation has been made. It was on the basis of this information that reprogramming of \$150,000 for the use of the Hirshhorn Museum was requested and approved. It is clear that in order to bring this major new museum into existence, a dramatic step-up of operating program activity must take place during the two-year building construction period. This will require a very substantial increase in program funds over this period if a public opening date of October 1972 (nine months after the completion of the building) is to be met.

Major additional funding requirements are in two categories: preparation of the collections, and the acquisition of furnishings and special equipment for the building. In fiscal year 1971, the Museum is seeking additional funds to accelerate preparation of the collections.

Some 1,200 paintings and pieces of sculpture of the total gift collection of 7,000 items must be readied for exhibition. These will be the choicest pieces with an estimated value of \$20 million. Of these 1,200 items, 700 are paintings and 500 are sculpture pieces. A careful survey of the restoration and framing requirements of these items has disclosed the following:

1. 100 large paintings (6 to 15 feet) will need major restoration at an average cost of \$1,000 each (\$100,000) and 50 will require work at \$300 each (\$15,000).
2. 350 smaller paintings will require restoration at prices ranging from \$250 to \$500 (\$150,000).
3. 500 paintings must be framed at prices ranging from \$45 to \$200 for a total cost of \$57,000.
4. 400 sculpture pieces, including about 150 which are classed as monumental, will need restoration at prices ranging from \$100 to \$750. Estimated total cost of the job will be \$170,000 which includes protective display cases for the smaller pieces of fragile sculpture, and the construction of bases for approximately 170 items.

To meet part of these costs, an additional \$160,000 are requested to meet the Museum's opening date. This work must be greatly accelerated and a production rate of at least one item a day must be maintained. Since conservators are in short supply and one piece may take many weeks to restore, premium prices may have to be paid, although an intensive search will be made to locate additional conservators.

A commensurate increase in professional and technical staff is required to prepare for the Museum's opening and subsequent exhibition and research programs. This staff must: receive and process the approximate 500 new works of art being added to the collection each year by Mr. Hirshhorn; negotiate with conservators and other contractors, and follow up on work in progress; conduct research and documentation for the opening exhibition as well as continue with the cataloging of the entire collection; and continue the Museum's present public services such as loans, photographic requests, and research queries. Conservation, photography, and storage facilities also must be planned. Museum administrative, budget, personnel, and fiscal business must be handled. This increased staff will cost \$50,000 and will include a curator, two exhibits technicians, three museum technicians, and a clerk-typist. A gradual phased buildup of essential staff members over the next two years makes sense in lieu of current and future Museum needs.

An additional \$165,000 are requested for other contractual service costs related to the collections, the rental of warehouse space and warehouse services (moving items in and out of storage for inspection, conservation, framing, etc.), photography to document the collections for exhibits planning and research purposes, and protective packing for shipping once restoration has been performed. Major trips to art museums and galleries for research will be necessary as well as trips to various collection storage areas.

Object Class	1970 Base	Increase Requested	1971 Estimate
Number of Permanent Positions	<u>13</u>	<u>7</u>	<u>20</u>
11 Personnel Compensation.....	\$129,000	\$ 50,000	\$ 179,000
12 Personnel Benefits.....	9,000	4,000	13,000
21 Travel & Transp. of Persons ..	11,000	14,000	25,000
22 Transportation of Things	8,000	12,000	20,000
23 Rent, Comm. and Utilities.....	29,000	44,000	73,000
24 Printing and Reproduction	4,000	2,000	6,000
25 Other Services	124,000	176,000	300,000
26 Supplies and Materials	16,000	34,000	50,000
31 Equipment	<u>17,000</u>	<u>43,000</u>	<u>60,000</u>
TOTAL.....	\$347,000	\$ 379,000	\$ 726,000
<u>Analysis of Total</u>			
Pay Increases	\$8,000	\$4,000	\$12,000
Program.....	\$339,000	\$375,000	\$714,000

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

1969 Actual	\$409,000
1970 Estimate.....	\$460,000
1971 Estimate.....	\$571,000

The principal function of the Smithsonian Tropical Research Institute (STRI) is to advance the frontiers of biology through intensive biological and ecological studies in the tropics. STRI's work serves a twofold purpose. First, understanding the earth's biology demands comprehension of the complex evolutionary and behavioral relationships of its most varied organisms, which are in the tropics. The tropics are the place of origin and principal center of evolution of most groups of organisms. New and major types of adaptation to new ways of life are more likely to be evolved by tropical species than by those of other regions. Tropical species also are more successful in invading other regions than are species of other regions in invading the tropics. In tropical areas, an abundance of observations, tests, assessments can be made every month of the year on change, competition, survival, and evolutionary success and failure.

Second, human populations in the tropics are increasing very rapidly, and are headed for ecological disaster in the absence of adequate information about their environment. In the north, we are concerned about air pollution, eutrophication of lakes, and the deleterious effects of insecticides. In the tropics, the problems are more brutal. Areas such as the hill country of Colombia and Panama, and the whole island of Madagascar, are fast becoming deserts. The basic features of tropical ecology must be understood as quickly as possible.

The staff scientists, research associates, pre and postdoctoral fellows, and visiting scientists and students from other institutions are attempting to describe the ecological and behavioral relationships among species in more precise quantitative, mathematical, or physical terms. More than 50 papers by STRI's staff in the past year are contributing to this knowledge. Research and study visits to the Institute climbed from 289 in 1966 to over 500 this past year, with the scientists and researchers remaining for longer and more productive work-stays.

An increase of \$100,000 is requested to develop and implement an environmental monitoring program; to provide for a strengthening of the marine biology program; and to improve the central services of the Institute. An additional \$11,000 are requested for necessary pay increases for the present staff.

Need for Increase--The principal center of terrestrial and fresh water research at STRI continues to be Barro Colorado Island, set aside as a preserve where men can join to understand a complex tropical environment. A host of separate studies have been conducted on the island over the past four decades, accelerating in recent years. It is probably better known than any comparable piece of land anywhere else in the tropics. This knowledge provides a unique foundation. The work to date represents an investment in professional time of irreplaceable import. Now we can build on it with a project of environmental monitoring--measuring the magnitude, frequency, predictability, and importance of a number of accessible environmental fluctuations. This can provide a key to one of the most essential questions in biology, How stable are the tropics and how does the answer tie in with evolutionary change? The project will be led by a forest ecologist (\$12,000) working in consort with present members of the staff. An additional \$13,000 are requested for travel, transportation, supplies and materials, equipment, and research support services.

The Smithsonian Tropical Research Institute is becoming increasingly active as a research base for marine scientists working in tropical waters. The biological richness of the area, the separation of two oceans by approximately 50 miles of land, the excellent accessibility of Panama, year-round opportunities

for test-organism breeding in food culture experiments, and many other factors yield a practical mandate for developing and refining a quality program in marine biology. A marine invertebrate biologist (\$12,000) is requested to assure continued steady progress of the Institute's tropical marine research program and its advanced scientific training program. One laboratory technician (\$7,000) is needed to permit the fuller use of the unique Galeta marine station, located on the Atlantic coast of Panama. Funds for travel, transportation, supplies, equipment, and other costs are also requested (\$13,000).

Central services have been strained to keep pace with current demands and the growth of the research program. One machinist (\$5,000) is requested to keep the small fleet of largely surplus vehicles, used for field work by the scientists, in proper operating condition. An additional \$25,000 are requested for supplies, rent, communications, contractual services (including mandatory school tuition and medical services for dependents), and the replacement of two worn-out vehicles and air conditioners. The addition of a contracts specialist (\$11,000) will improve STRI's ability to enter into reimbursable contract relationships with the many agencies, institutions, and centers that seek professional assistance in tackling problems concerning research and advanced training. An increase of \$2,000 is requested for travel support.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	38	5	43
11 Personnel Compensation.....	\$339,000	\$ 54,000	\$ 393,000
12 Personnel Benefits.....	26,000	4,000	30,000
21 Travel & Transp. of Persons ..	15,000	6,000	21,000
22 Transportation of Things	3,000	3,000	6,000
23 Rent, Comm. and Utilities.....	17,000	5,000	22,000
24 Printing and R. production	0	0	0
25 Other Services	28,000	15,000	43,000
26 Supplies and Materials	22,000	10,000	32,000
31 Equipment	10,000	14,000	24,000
TOTAL.....	\$460,000	\$ 111,000	\$ 571,000
<u>Analysis of Total</u>			
Pay Increases	\$21,000	\$11,000	\$32,000
Program.....	\$439,000	\$100,000	\$539,000

RADIATION BIOLOGY LABORATORY

1969 Actual.....	\$399,000
1970 Estimate.....	\$789,000
1971 Estimate.....	\$998,000

The program of the Radiation Biology Laboratory, fundamentally concerned with the effects of the sun's energy on Earth's life, has been devoted to the study of the responses of living organisms to various qualities and intensities of radiant energy and to the determination of the influence of various factors in the environment--light, temperature, humidity, and atmospheric content--on growth and development cycles of plants. As a corollary to the serious concern with regard to the deleterious effects of air pollutants on living systems, there has been speculation that less of the sun's energy is reaching the Earth's surface. Recent comparisons with data gathered by the Smithsonian at the turn of the century indicate that the decrease in solar energy may be as much as 16 percent. This investigation is continuing. There are essentially no data available to indicate what the long-term effects of such a reduction will be upon crop and food production. The Laboratory's program of solar energy measurements and biological response correlation fills a significant gap in efforts to provide understanding of the interacting factors that man must adjust and control in order to maintain a habitable environment. The Laboratory has been credited with major contributions in photobiology which include the first detailed action spectra of such diverse responses as photosynthesis, photocontrol of seed germination, the induction and reversal of photomorphogenesis, and phototropism.

¹ An increase of \$200,000 is requested in order to complete the relocation requirements of the Laboratory at the new Rockville, Md., site. Funds in the amount of \$9,000 are also requested for necessary pay.

Need for Increase--Fiscal year 1971 will be the first full year of operations in the new laboratory building in Rockville, Md. The move is now scheduled to be completed by March 1970. For the first time since the Laboratory's establishment in 1929, it will be provided with properly configured space of adequate size. A significant base for improved research capability has been provided. To assure the successful use of this new space for scientific investigations, additional funding is requested for the basic operation of the building and for research support.

Increased funding, provided in the fiscal year 1970 appropriation, will meet the basic cost of the lease and part of the mechanical and service support staff required. Other building and operating costs will not be met. The lease for the new building costs \$256,000 annually. An additional amount will be required to pay for the GSA administrative charge, which has yet to be determined. The new laboratory area is at least one-third greater than the inadequate space in the Smithsonian Institution building previously occupied. It will include 11 cold rooms, 40 large growth chambers, 8 walk-in environmental chambers, and a large controlled environment greenhouse. Mechanical and service support for the operation of these facilities on a 24-hour continuous basis is essential. Two operating engineers (mechanical and refrigeration) and an electrician to maintain and operate the facilities and complex laboratory equipment are required (\$33,000).

Basic custodial supplies, materials, and equipment will be needed to clean and maintain the new building space. A laboratory has unusually heavy demands for maintaining working areas clean and well lighted because of the inherent safety hazards of handling chemicals and equipment, as well as requirements for precision measurements. An amount of \$5,000 is requested for cleaning materials and lamp replacements.

Substantial utility costs will be incurred for electrical power for laboratory and refrigeration equipment and to light controlled plant growing rooms, as well as for conventional lighting for the 50,000 square ft. building. Telephone, water, gas, sewage, and trash disposal services must also be provided. An additional \$101,000 are requested to provide for these services.

Security of the building, with five outside entrances, can most economically be achieved by the use of an automatic electronic alarm system. A guard system would require a minimum of five men and \$30,000 to achieve the same results. Contractual service funds in an amount of \$3,000 are requested for security costs.

Library services will be needed at the new location because the Institution's regular library staff will not be able to supply service at the Laboratory's new location. At the present time, there is no library service; secretarial time, as available, is used to keep shelves in order. A full-time library technician is requested to maintain the present literature collection; recommend new publications; furnish information with regard to acquisitions; catalog and file published material authored by staff members; fill requests for reprints; meet requests from research staff for literature citations; arrange for loans from other libraries; and provide other library services (\$8,000).

Equipment deficiencies will retard the Laboratory's research activities. Fifty percent of RBL's scientific equipment, including spectrophotometers, radiation devices, monochromators, autoclaves, centrifuges, and other instruments are more than eight years old and in need of replacement. The present equipment has been screened and careful determinations made with respect to the costs of relocation and modernization versus construction and purchase of new equipment. The bulk of the present equipment is being relocated; but many items, particularly those which had been installed or built into the previous quarters, can be more economically purchased new. A continuing effort is being made to obtain equipment available from federal surplus lists and by the purchase of second-hand laboratory benches and exhaust fume hoods, as such items become available. However, even with these considerable savings, \$50,000 will be required for basic equipment needs.

It should be reemphasized that the requested increases outlined are a minimum to operate, maintain, and protect new and larger building spaces at a working level. The needs included do not represent program expansion.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>36</u>	<u>4</u>	<u>40</u>
11 Personnel Compensation.....	\$ 372,000	\$ 47,000	\$ 419,000
12 Personnel Benefits.....	31,000	3,000	34,000
21 Travel & Transp. of Persons ..	5,000	0	5,000
22 Transportation of Things	2,000	0	2,000
23 Rent, Comm. and Utilities.....	256,000	101,000	357,000
24 Printing and Reproduction	0	0	0
25 Other Services	20,000	3,000	23,000
26 Supplies and Materials	24,000	5,000	29,000
31 Equipment	<u>79,000</u>	<u>50,000</u>	<u>129,000</u>
TOTAL.....	\$ 789,000	\$ 209,000	\$ 998,000

Analysis of Total

Pay Increases	\$ 35,000	\$ 9,000	\$ 44,000
Program.....	\$ 754,000	\$ 200,000	\$ 954,000

OFFICE OF ECOLOGY

1969 Actual	\$110,000
1970 Estimate.....	\$133,000
1971 Estimate.....	\$190,000

The Office of Ecology was established to support and coordinate research within various bureaus of the Smithsonian and with other organizations. It provides project planning, guides ecological studies, develops and assists international ecological and conservation projects, and helps in the biocommunications area with ecological symposia and conferences. The Office facilitates the use of the Smithsonian's resources by biologists, ecologists, and other scientists. Competence in radiobiology, biology, and earth sciences is available. The Smithsonian is unique in having some of the largest natural history collections in the world, which are required for precise identifications of ecosystem components. In addition, Smithsonian natural preserves in the tropics (Smithsonian Tropical Research Institute) and the temperate zone (Chesapeake Bay Center for Environmental Sciences) provide strategic sites for ecological field studies.

An increase of \$55,000 is requested to provide for a resident ecologist, a program assistant, a security officer, and support funds for a comprehensive ecological program at the Chesapeake Bay Center for Environmental Sciences. An additional \$2,000 are requested for necessary pay increases for the present staff.

Need for Increase--The Chesapeake Bay Center for Environmental Sciences was established to provide an easily accessible and protected area in which ecological and environmental research could be conducted. Projects at the Bay Center are carefully chosen for their merit and to assure that they complement rather than duplicate work being done elsewhere. The variety of ecosystems, including marshes, abandoned pastures, upland hardwood forests, and cultivated land at the Center, are used by scientists from various bureaus of the Smithsonian, federal and state agencies, and a consortium of universities for studies covering a wide variety of subjects.

A comprehensive ecological study is needed of the Chesapeake Bay watershed. This area has considerable economic importance, and is being subjected to increasing amounts of thermal and chemical pollution. The program would include studies to determine energy output, the total biological productivity of the land and the estuary, and the effects of pollution. Essential to this study is the research program at the Chesapeake Bay Center, a summary of which is shown on the following page. A resident ecologist, program assistant (\$22,000), and \$27,000 for support in the form of travel, supplies, equipment, and other services are requested to develop, coordinate, and implement this comprehensive ecological study of the Chesapeake Bay watershed. Under their direction and guidance, scientists from the Smithsonian and elsewhere would engage in a systematic study of the Chesapeake Bay area around the Center and in other selected areas of scientific interest.

The Center's utility to scientists depends upon the land and water areas remaining undisturbed. However, in the past, picnickers, poachers, vandals, and other trespassers have disturbed the land and water area and the carefully designed experiments set up through the Center. For this reason, a security officer (\$6,000) is requested to provide the proper protection for the Center's facilities and experiments.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>5</u>	<u>3</u>	<u>8</u>
11 Personnel Compensation.....	\$ 101,000	\$ 28,000	\$ 129,000
12 Personnel Benefits.....	7,000	2,000	9,000
21 Travel & Transp. of Persons ..	7,000	2,000	9,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	10,000	6,000	16,000
26 Supplies and Materials	2,000	9,000	11,000
31 Equipment	<u>6,000</u>	<u>10,000</u>	<u>16,000</u>
TOTAL.....	<u>\$133,000</u>	<u>\$ 57,000</u>	<u>\$ 190,000</u>
<u>Analysis of Total</u>			
Pay Increases	\$ 5,000	\$2,000	\$7,000
Program.....	<u>\$128,000</u>	<u>\$55,000</u>	<u>\$183,000</u>

**Chesapeake Bay Center for Environmental Sciences
Examples of Research Projects Being Conducted**

Estuarine Studies

Water quality including the measurement of temperature, salinity, PH, conductivity, and dissolved oxygen and nutrients such as ammonia, nitrates, nitrite-nitrogen, polyphosphates, orthophosphates.

Fish populations, varieties, distribution, rate of growth, and predator-prey relationships.

The productivity of plankton in the estuary and its tributaries.

The distribution and abundance of native and introduced aquatic vegetation.

Studies of the epifauna community.

Bacterial characteristics of the water.

Bottom sedimentology and bathymetry in the estuary.

Terrestrial Studies

Ecology of birds, especially ducks, geese, and swans.

Studies of terrestrial plants and animals.

Vegetation mapping.

Population studies of terrestrial birds and their relation to successional plant communities.

Underlying mechanisms of vegetation change.

Diseases of Plants and Animals

Host-parasite relationships of birds, viruses, and blood parasites.

Diseases of aquatic plants.

Pesticide residues in plants, animals, and birds.

Archeology

Field work into the 35-40 sites, identified so far on the Center's property, that date as far back as 500 B.C.

Land-Use History

Research into previous occupancy and the utilization of the land in order to understand the present nature, distribution, and abundance of plant and animal communities.

OFFICE OF OCEANOGRAPHY AND LIMNOLOGY

1969 Actual	\$310,000
1970 Estimate.....	\$336,000
1971 Estimate.....	\$496,000

The Office of Oceanography and Limnology was established to provide increased knowledge of the oceans and fresh waters that comprise 71 percent of our planet. Through its sorting centers in Washington, D. C., and in Tunisia (the latter principally supported by the foreign currency program), the Office serves as a substantial producer and repository of biological and geological data for federal and private users and broadens the ability of scientists to respond to national needs. The Office also facilitates the productive involvement of Smithsonian and other scientists and research organizations in marine and fresh-water research by providing a focal point for their effective use of Smithsonian resources. Emphasis has been given to assisting investigators in the problems associated with the consequences of environmental modification, including such biological changes as may result from the connection of the two oceans, problems of nearshore modification, and pollution.

An increase of \$150,000 is requested to strengthen the operations of the Smithsonian Oceanographic Sorting Center. Funds in the amount of \$10,000 are requested for necessary pay increases for the Office's present staff.

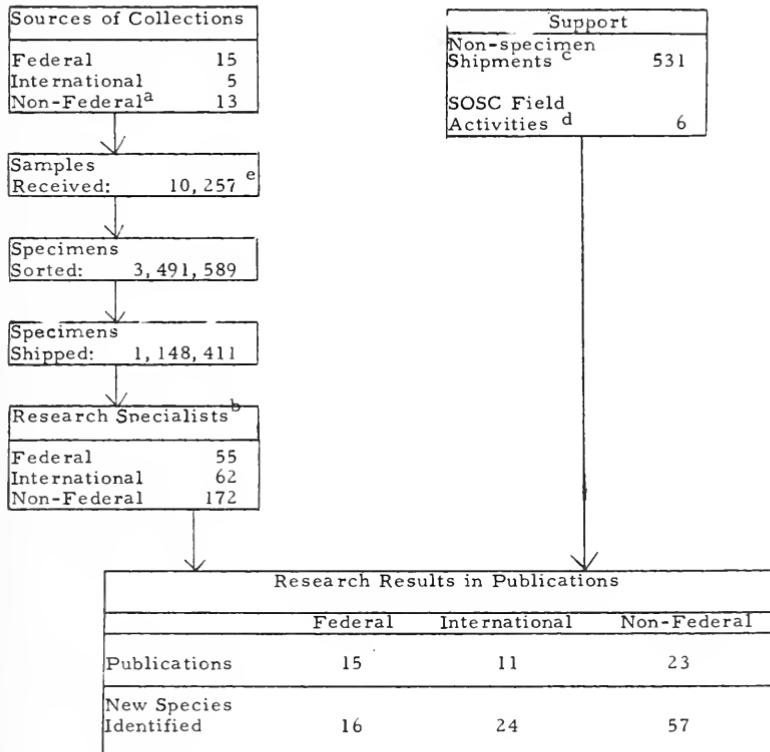
Need for Increase--The Office of Oceanography and Limnology operates the Smithsonian Oceanographic Sorting Center, which processes marine specimens from United States and international expeditions for use by more than 300 scientists from 27 countries in specimen-related research. The Center provides marine biological and geological identification services and serves as a national referral service for all kinds of specimen-based activities, from field collecting to the disposition of identified species in permanent repositories. The Center receives bulk samples, including station data (water, temperature, salinity, etc.), from governmental and private sources, sorts them into appropriate groupings, and sends them, upon request, to researchers and scientists for use in various research projects. A summary of the activities of the Sorting Center during fiscal year 1969 is shown on the following page.

The Sorting Center has made concerted efforts to improve its productivity. An automatic data processing system for specimen records has been started. Many manual operations--including the preparation of labels, inventory cards, and shipping documents--have been automated. Many instruments and scientific devices have been acquired or fabricated by the Sorting Center to improve efficiency and, when possible, have been purchased through government surplus sources to cut costs. Field manuals for the identification of the common and important species are being developed, as well as new techniques for the preservation and fixation of marine biological specimens.

Even after instituting these efficiencies, the Center is unable to meet the increasing demand from colleges, universities, and federal agencies for specimens. Backlogs of unsorted samples now exist for specimens gathered from the Great Lakes and several important oceanic expeditions. The backlog is due primarily to the fact that the present staff is unable to process and sort the more than 10,000 samples being received annually. Unless these backlogged samples are sorted soon, many will deteriorate to the point of being useless for research.

In order to alleviate this backlog, \$63,000 are requested for eight positions to be used for sorter-technicians and a chemist who will be employed to process and preserve the large number of specimens at the Center. Support funds in the amount of \$87,000 are requested to provide services, supplies, and equipment essential to sort, package, and distribute specimens, travel, and rental of equipment.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>18</u>	<u>8</u>	<u>26</u>
11 Personnel Compensation.....	\$253,000	\$ 68,000	\$ 321,000
12 Personnel Benefits.....	19,000	5,000	24,000
21 Travel & Transp. of Persons ..	5,000	5,000	10,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	4,000	2,000	6,000
24 Printing and Re-production	0	0	0
25 Other Services	40,000	40,000	80,000
26 Supplies and Materials	7,000	20,000	27,000
31 Equipment	8,000	20,000	28,000
TOTAL.....	<u>\$336,000</u>	<u>\$ 160,000</u>	<u>\$ 496,000</u>
<u>Analysis of Total</u>			
Pay Increases	\$18,000	\$10,000	\$28,000
Program.....	\$318,000	\$150,000	\$468,000

Smithsonian Oceanographic Sorting Center
Fiscal Year 1969

In addition to supplying 55 Federal organizations and specialists with specimens through the Sorting Center, the Office of Oceanography and Limnology has worked closely with the President's National Council on Marine Resources and Engineering Development through participation in its committees and panels, and also with the National Water Commission by developing an Ecological Review Panel to assist the Commission in developing their study. It has also responded to many requests for aquatic data from the Departments of Interior, Navy, State, Army, Transportation, and Health, Education, and Welfare, and the Atomic Energy Commission, and has assisted the Corps of Engineers in the development and evaluation of pollution studies.

^a United States and foreign colleges, universities, institutes, and others.

^b Approved by SOSC Advisory Committees.

^c Supplies and collecting gear for expeditions, cruise reports, data summaries and charts, bottom photographs.

^d Participation in cruises and expeditions.

^e Samples vary in size from test tubes to thousands of gallons in drums.

CENTER FOR THE STUDY OF MAN

1969 Actual	\$82,000
1970 Estimate.....	\$113,000
1971 Estimate.....	\$164,000

The Center for the Study of Man was established in 1968 to foster and coordinate interdisciplinary research, education, and service efforts involving scientists and historians from the Smithsonian and other institutions in this country and abroad, to facilitate the study of man on a worldwide scale. Its special concern is the development of the human sciences as they deal with all cultures and peoples from the earliest times to the present and the relevance of anthropological knowledge to major problems which beset mankind.

An increase of \$50,000 is requested to continue work on the revision of the Handbook of North American Indians and to fund an Urgent Anthropology Small Grants Program. An additional \$1,000 are sought to help meet necessary pay increases.

Need for Increase1. Handbook of North American Indians (3 positions, \$45,000)

The Handbook will be an encyclopedia of 15 or more volumes, summarizing all that is known of the prehistory and history of traditional and modern cultures of all the Indian groups north of Mexico. The new Handbook will utilize the resources of the Institution--scientific staff, manuscript and picture archives, library, and museum collections--which are unexcelled as a basis for this project--to update and replace the previous standard encyclopedic work on this topic which was issued by the Smithsonian in 1907-1910. The revised Handbook will become the standard reference work on all aspects of North American Indian history and cultures for students, teachers, authors, researchers, and administrators, both Indian and nonIndian.

The plans for the new Handbook were first announced in 1966. Since then, work on the revisions has been directed at preliminary planning activities--lists of some 2,000 potential contributors have been compiled; consultations held on organizing the Handbook's contents; and procedures to screen and check manuscripts developed. The Handbook is now at the stage where actual work on the book can begin. Any delays will cause the disillusionment of the academic community whose support as contributors and advisors is essential. An amount of \$25,000 is requested to provide for an editor, a research assistant, and a clerk-typist. An additional \$20,000 will be required for travel, equipment, short-term research contracts, and other services.

2. Urgent Anthropology Small Grants Program (\$5,000)

The primary purpose of this program is to gather data on cultures or subcultures that are rapidly changing or disappearing as a result of economic or technological pressures. By awarding small grants, from \$100 to \$1,000, it enables qualified investigators in many areas to carry out urgent research on groups while they still exist as distinct entities. Results of these studies may have bearing on the solution of social and economic problems. A pilot project consisting of a series of small awards, made from grant funds (usually on a matching basis with other institutions), over the past several years has proved highly successful, frequently taking advantage of researchers who happen to be on the scene. A \$300 grant to a VISTA volunteer working in an Eskimo village enabled him to document changes to the traditional culture of a village caused by industrialization. Another grant of only \$150 provided for the recording on film and tape of traditional music of the native people of the Eastern Caroline Islands. Both of these projects provided the Smithsonian with valuable data at far less cost than obtainable by other means. Similar grants would be made under this program.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>2</u>	<u>3</u>	<u>5</u>
11 Personnel Compensation.....	\$ 27,000	\$ 24,000	\$ 51,000
12 Personnel Benefits.....	2,000	2,000	4,000
21 Travel & Transp. of Persons ..	2,000	5,000	7,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	81,000	18,000	99,000
26 Supplies and Materials	0	0	0
31 Equipment	1,000	2,000	3,000
TOTAL.....	\$ 113,000	\$ 51,000	\$ 164,000
<u>Analysis of Total</u>			
Pay Increases	\$2,000	\$1,000	\$3,000
Program.....	\$111,000	\$50,000	\$161,000

CENTER FOR SHORT-LIVED PHENOMENA

1969 Actual.....	0
1970 Estimate.....	\$10,000
1971 Estimate.....	\$35,000

The Center for Short-Lived Phenomena was established in fiscal year 1968 to serve as a clearing house for the timely receipt and dissemination of information concerning rare natural events which might otherwise go unobserved or uninvestigated. Rapid dissemination of event reports permits research teams to enter an area, often while the event is occurring, to gather information that otherwise would be lost to science. Reports are received from a wide range of sources, including news media, private citizens, individual scientists, and scientific observatories. These reports are made available to investigators and others who become correspondents of the Center and indicate their desire to receive them. Reports are transmitted by radio, cable, telephone, or air mail, depending on the correspondent's ability to receive the information and/or respond to the event.

An increase of \$25,000 is requested to provide for a publications specialist and sufficient communications services to report the increasing number of events to a worldwide network of scientists and researchers.

Need for Increase--During 1969, the Center participated in 146 geophysical, astrophysical, and biological events as compared to 68 events in 1968, including 23 major earthquakes and other earth science events such as landslides, landrises, storm surges, and tsunamis; 51 ecological events including 11 animal eruptions, migrations, and colonizations; 17 major oil spills and pollution events; 21 astrophysical events including 16 major fireballs, 5 meteorite falls and their recovery; 7 urgent anthropological/archeological events including two new tribe discoveries. Other events of interest included a floating island in the Caribbean, a submarine volcanic eruption in the Solomon Islands, the Indo-Pacific starfish plague, and 44 events of transient lunar phenomena observed during the Apollo manned lunar missions. A partial list of the events reported by the Center for Short-Lived Phenomena during the first 10 months of calendar year 1969 is shown on the following page.

These events led to 54 actual onsite investigations. Twenty scientific publications have resulted from the Center's operations. The Center's work has received an enthusiastic response from the scientific community throughout the world. It has been besieged with requests from universities, foundations, Federal agencies, and scientific societies asking to become part of the Center's reporting system. Its number of correspondents has grown to 2,252 in 122 countries, representing every major scientific discipline. New requests continue to arrive at the rate of 50 a month. Forty-six Federal agencies and departments are users of the Center's services.

The Center has instituted every possible efficiency including automatic computer printouts of event notifications. However, the resources of the Center are severely limited and its current ability to cope with more than 250,000 event notifications is very inadequate. The Center has been successful in obtaining outside financial support for special projects, e.g. the Apollo flights, and has also started a subscription system for those individuals and organizations who are receivers, but not major contributors of information. While some \$15,000 will be raised by this means, the success of the Center's regular operations depends heavily on the level of the core Federal funding it receives. The most essential need is for a publications specialist to handle the increased event traffic and for operations and communications services to assure that sufficient facilities will be available to maintain the required speed and level of event reporting (\$25,000).

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>0</u>	<u>1</u>	<u>1</u>
11 Personnel Compensation.....	\$ 0	\$ 6,000	\$ 6,000
12 Personnel Benefits.....	0	1,000	1,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	10,000	8,000	18,000
24 Printing and Reproduction	0	6,000	6,000
25 Other Services	0	2,000	2,000
26 Supplies and Materials	0	2,000	2,000
31 Equipment	0	0	0
TOTAL.....	<u>\$10,000</u>	<u>\$ 25,000</u>	<u>\$ 35,000</u>
<u>Analysis of Total</u>			
Pay Increases.....	0	0	0
Program.....	\$10,000	\$25,000	\$35,000

EVENT NUMBER	NAME	LOCATION	DATE OF EVENT	IN/OUT TO EVENTS		NAME	LOCATION	DATE OF EVENT
				EVENT NUMBER	NAME			
1-69	SOLOMON ISLANDS EARTHQUAKE	SOLOMON ISLANDS	JANUARY 1969	5	JANUARY 1969	5	BIRNE RIVER EARTHQUAKE	JANUARY 1969
2-63	SANTA FE PREHISTORIC CANAL TRACKS	NEW MEXICO, USA	JANUARY 1969	6	JANUARY 1969	6	BUPIRAN VOLCANIC ERUPTION	JANUARY 1969
3-69	QTA. TUTUO FIREBALL	JAPAN	JANUARY 1969	7	JANUARY 1969	7	INDIAN FIREBALL	JANUARY 1969
4-69	RE. 5.5 VOLCANIC ERUPTION	INDONESIA	JANUARY 1969	8	JANUARY 1969	8	INDIAN FIREBALL	JANUARY 1969
5-69	ANDES VOLCANIC ERUPTION	CHILE	JANUARY 1969	9	JANUARY 1969	9	INDIAN FIREBALL	JANUARY 1969
6-69	ANDES VOLCANIC ERUPTION	PERU	JANUARY 1969	10	JANUARY 1969	10	INDIAN FIREBALL	JANUARY 1969
7-69	WHA. STONE AGE THRE DISCOVERY	SURINAM S.A.	JANUARY 1969	11	JANUARY 1969	11	CASTROVIEJO SWIMMING	JANUARY 1969
8-69	CLEAR RAPIDS FIREBALL	PHILIPPINES	JANUARY 1969	12	JANUARY 1969	12	COOK INLET OIL SPILL 11.	JANUARY 1969
9-69	MISANOVO EARTHQUAKE	PHILIPPINES	JANUARY 1969	13	JANUARY 1969	13	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
10-69	SANTA MARINA OIL SPILL	CALIFORNIA, USA	JANUARY 1969	14	JANUARY 1969	14	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
11-69	SANTA MARINA OIL SPILL	INDIA	JANUARY 1969	15	JANUARY 1969	15	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
12-69	SANTA MARINA OIL SPILL	INDIA	JANUARY 1969	16	JANUARY 1969	16	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
13-69	TELLIC VOLCANIC ERUPTION	INDONESIA	JANUARY 1969	17	JANUARY 1969	17	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
14-69	HOUSTON FIREBALL	TEXAS, USA	JANUARY 1969	18	JANUARY 1969	18	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
15-69	ANGRADE VOLSE MIGRATION (1969)	ALASKA, USA	JANUARY 1969	19	JANUARY 1969	19	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
16-69	INDIA. ANDAMAN ISLAND VOLCANIC ERUPTION	INDIA	JANUARY 1969	20	JANUARY 1969	20	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
17-69	MAKASSAR STRAIT CARBONATE	ANTARCTICA	JANUARY 1969	21	JANUARY 1969	21	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
18-69	INDONESIA	INDONESIA	JANUARY 1969	22	JANUARY 1969	22	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
19-69	MT. LNU BOLBO VOLCANIC ERUPTION	PORTUGAL	JANUARY 1969	23	JANUARY 1969	23	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
20-69	POITIERS VOLCANIC ERUPTION	INDONESIA	JANUARY 1969	24	JANUARY 1969	24	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
21-69	WALAM VOLCANIC ERUPTION	PALESTINE	JANUARY 1969	25	JANUARY 1969	25	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
22-69	WALAM VOLCANIC ERUPTION	PALESTINE	JANUARY 1969	26	JANUARY 1969	26	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
23-69	TELLULIA. SEA ANIMAL DISSEYNE	INDONESIA	JANUARY 1969	27	JANUARY 1969	27	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
24-69	COOK INLET OIL SPILL	ALASKA, USA	JANUARY 1969	28	JANUARY 1969	28	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
25-69	LOUISIANA OIL SPILL	LOUISIANA, USA	JANUARY 1969	29	JANUARY 1969	29	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
26-69	MIAMI-DARL. SAKURA-ZINDO VOLCANO	JAPAN	JANUARY 1969	30	JANUARY 1969	30	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
27-69	LUCCA POL. FIREBALL	INDIA	JANUARY 1969	31	JANUARY 1969	31	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
28-69	LUCCA POL. FIREBALL	INDIA	JANUARY 1969	32	JANUARY 1969	32	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
29-69	TURKEY CARBONATE	POLPHILINES	JANUARY 1969	33	JANUARY 1969	33	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
30-69	INDONESIA	TURKEY	JANUARY 1969	34	JANUARY 1969	34	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
31-69	NAUDHIERA ISLAND EARTHQUAKE	INDONESIA	JANUARY 1969	35	JANUARY 1969	35	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
32-69	RE. SEA EARTHQUAKE	INDONESIA	JANUARY 1969	36	JANUARY 1969	36	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
33-69	CHITON VOLCANIC ERUPTION	INDONESIA	JANUARY 1969	37	JANUARY 1969	37	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
34-69	CHITON VOLCANIC ERUPTION	INDONESIA	JANUARY 1969	38	JANUARY 1969	38	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
35-69	INDONESIA	INDONESIA	JANUARY 1969	39	JANUARY 1969	39	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
36-69	URDUV. LANGECLIE	INDIA	JANUARY 1969	40	JANUARY 1969	40	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
37-69	NAPA FIREBALL	INDIA	JANUARY 1969	41	JANUARY 1969	41	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
38-69	NEW JERSEY FISH/CUSTACEAN MORTALITY	INDIA	JANUARY 1969	42	JANUARY 1969	42	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
39-69	DOUCHE COAST OIL SPILL	INDIA	JANUARY 1969	43	JANUARY 1969	43	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
40-69	ELICON. RE. LA VELA VOLCANIC ACTIVITY	INDIA	JANUARY 1969	44	JANUARY 1969	44	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
41-69	ELICON. RE. LA VELA VOLCANIC ACTIVITY	INDIA	JANUARY 1969	45	JANUARY 1969	45	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
42-69	ELICON. RE. LA VELA VOLCANIC ACTIVITY	INDIA	JANUARY 1969	46	JANUARY 1969	46	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
43-69	HAMPTON VOLCANIC ERUPTION	INDIA	JANUARY 1969	47	JANUARY 1969	47	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
44-69	POSS. VOLCANIC ACTIVITY	INDIA	JANUARY 1969	48	JANUARY 1969	48	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
45-69	SANDY ISLANDS VOLCANIC ACTIVITY	INDIA	JANUARY 1969	49	JANUARY 1969	49	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
46-69	SANDY ISLANDS VOLCANIC ACTIVITY	INDIA	JANUARY 1969	50	JANUARY 1969	50	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
47-69	ANHITA. EARTHQUAKE	INDIA	JANUARY 1969	51	JANUARY 1969	51	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
48-69	IMULHATI. TRAVI. OIL SPILL	INDIA	JANUARY 1969	52	JANUARY 1969	52	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
49-69	AKLATHONG'S RED STOT	INDIA	JANUARY 1969	53	JANUARY 1969	53	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
50-69	AKLATHONG'S RED STOT	INDIA	JANUARY 1969	54	JANUARY 1969	54	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
51-69	AKLATHONG'S RED STOT	INDIA	JANUARY 1969	55	JANUARY 1969	55	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
52-69	AKLATHONG'S RED STOT	INDIA	JANUARY 1969	56	JANUARY 1969	56	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
53-69	HT. ANTILL. SEISMIC ACTIVITY	INDIA	JANUARY 1969	57	JANUARY 1969	57	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
54-69	PISTARIAUS RIVER OIL SPILL	INDIA	JANUARY 1969	58	JANUARY 1969	58	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
55-69	SALO LANDSLIDE	INDIA	JANUARY 1969	59	JANUARY 1969	59	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
56-69	SUMITRONIC. WATE POLLUTION	INDIA	JANUARY 1969	60	JANUARY 1969	60	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
57-69	MEDING VALLEY VOLCANIC	INDIA	JANUARY 1969	61	JANUARY 1969	61	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
58-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	62	JANUARY 1969	62	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
59-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	63	JANUARY 1969	63	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
60-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	64	JANUARY 1969	64	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
61-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	65	JANUARY 1969	65	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
62-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	66	JANUARY 1969	66	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
63-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	67	JANUARY 1969	67	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
64-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	68	JANUARY 1969	68	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
65-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	69	JANUARY 1969	69	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
66-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	70	JANUARY 1969	70	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
67-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	71	JANUARY 1969	71	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
68-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	72	JANUARY 1969	72	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
69-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	73	JANUARY 1969	73	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
70-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	74	JANUARY 1969	74	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
71-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	75	JANUARY 1969	75	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
72-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	76	JANUARY 1969	76	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
73-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	77	JANUARY 1969	77	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
74-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	78	JANUARY 1969	78	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
75-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	79	JANUARY 1969	79	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
76-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	80	JANUARY 1969	80	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
77-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	81	JANUARY 1969	81	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
78-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	82	JANUARY 1969	82	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
79-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	83	JANUARY 1969	83	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
80-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	84	JANUARY 1969	84	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
81-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	85	JANUARY 1969	85	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
82-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	86	JANUARY 1969	86	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
83-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	87	JANUARY 1969	87	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
84-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	88	JANUARY 1969	88	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
85-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	89	JANUARY 1969	89	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
86-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	90	JANUARY 1969	90	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
87-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	91	JANUARY 1969	91	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
88-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	92	JANUARY 1969	92	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
89-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	93	JANUARY 1969	93	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
90-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	94	JANUARY 1969	94	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
91-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	95	JANUARY 1969	95	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
92-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	96	JANUARY 1969	96	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
93-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	97	JANUARY 1969	97	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
94-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	98	JANUARY 1969	98	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
95-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	99	JANUARY 1969	99	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
96-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	100	JANUARY 1969	100	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
97-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	101	JANUARY 1969	101	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
98-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	102	JANUARY 1969	102	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
99-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	103	JANUARY 1969	103	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
100-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	104	JANUARY 1969	104	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
101-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	105	JANUARY 1969	105	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
102-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	106	JANUARY 1969	106	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
103-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	107	JANUARY 1969	107	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
104-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	108	JANUARY 1969	108	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
105-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	109	JANUARY 1969	109	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
106-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	110	JANUARY 1969	110	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
107-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	111	JANUARY 1969	111	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
108-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	112	JANUARY 1969	112	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
109-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	113	JANUARY 1969	113	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
110-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	114	JANUARY 1969	114	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
111-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	115	JANUARY 1969	115	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
112-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	116	JANUARY 1969	116	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
113-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	117	JANUARY 1969	117	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
114-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	118	JANUARY 1969	118	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
115-69	MEIDING VALLEY VOLCANIC	INDIA	JANUARY 1969	119	JANUARY 1969	119	OTRAT THOMI SITE DISCOVERY	JANUARY 1969
116-69	MEIDING VAL							

AMERICAN REVOLUTION BICENTENNIAL PROGRAM

1969 Actual	0
1970 Estimate	0
1971 Estimate	\$400,000

The 200th anniversary of the United States will be an occasion for Americans to reassess the ideals which brought about the Revolution, to review our national achievements, to place in perspective ethnic, cultural, and religious diversities which have consistently contributed to our national development, to see where we have fallen short of maintaining the spirit of 1776, and to build a stronger base for hope and confidence in our future. The Bicentennial presents a unique opportunity for strong reaffirmation of the self-reliance, courage, and pursuit of worthy goals and high ideals which characterized the leaders of the Revolution.

With its scholarly staff, a large and broadly-based public participation in its activities, and as the national repository of objects documenting the history and growth of the United States, the Smithsonian Institution will play an important role in the observance of the Bicentennial of the American Revolution. In anticipation of increasing public interest, the Smithsonian Institution has initiated scholarly research and across-the-board planning to provide historical accuracy and latest technology to its projected exhibitions and other programs relating to the events leading up to the Revolution. This ground work will enhance the educational quality of our programs in later years. Some preliminary exhibitions and events have already been held, beginning in fiscal year 1965. A listing of these appears in Table 1. These preliminary activities have been funded by the Smithsonian's regular appropriations. Since the level of commemorative activity must increase as 1976 approaches, additional funds will become necessary.

Table 1

Smithsonian Projects Relating to the Bicentennial
through fiscal year 1970

Exhibition on George Mason and the Virginia Bill of Rights;

Exhibition on individual rights as dramatized by the 200th Anniversary of the Stamp Act;

Exhibition on the Townshend Acts;

Small exhibit of Charles Willson Peale silhouettes, an aspect of American graphic arts history;

Annual Folk Festivals on the Mall;

Performances of Americana in the Mall tent;

Exhibition on the history of American music making in colonial Boston, Mount Vernon, the Moravian colony, and folk music of the time;

Research opportunities at the graduate level in American studies, in American military and naval history, and in civil history;

Study programs at the National Portrait Gallery, National Collection of Fine Arts, Freer Gallery, and the Center for the Study of Man, which has extensive resources for the study of the American Indian;

Exhibition on printing and print making in the first 150 years of American life;

Research studies in museum administration, conservation, and exhibits;

Study programs at the Cooper-Hewitt Museum in New York.

These various Smithsonian activities have focused on the growing tensions between the New World settlers and the Mother Country; the development of a distinctive American culture; and the development of a technology responsive to our material requirements.

The responsibility of the Smithsonian in the 200th anniversary observances, the expectations of the President, the proper demands of the Congress and concerned private organizations and persons, will all be disappointed if the contribution of the Smithsonian must be limited to that possible within regular budgetary ceilings.

Intensified preparations must begin in fiscal year 1971 if the Smithsonian is to perform according to the letter and spirit of Congressional and public requests. The special budget request for the Smithsonian's participation in the Bicentennial of the American Revolution for 1971 is \$400,000.

This initial funding, with gradual increases as activity is stepped-up, will be needed through fiscal year 1977, as indicated in Table 2. This special funding will not result in significant permanent increases in the Institution's staff or appropriations base. Collections, exhibitions, research, and publications, however, will continue to be a tangible result of this investment long after the close of the Bicentennial Era.

Table 2

Bicentennial Activities and Budget Forecast
(in thousands of dollars)

	1971	1972	1973	1974	1975	1976	1977
Exhibitions and Performances	\$250	\$405	\$500	\$500	\$600	\$650	\$400
Research and Publications	50	100	125	125	125	125	100
Planning and Administration	100	100	100	100	100	75	50
Total	<u>\$400</u>	<u>\$605</u>	<u>\$725</u>	<u>\$725</u>	<u>\$825</u>	<u>\$850</u>	<u>\$550</u>
Staff	5	8	12	14	16	18	18
1. Washington Programs .....	.....	.....	.....	.....	.....	.....	\$280,000

Current data indicate that every other visitor to Washington is also a visitor to the Smithsonian's museums and art galleries. Total attendance at the Smithsonian in calendar year 1969 was over 12.4 million. It is safe to assume that the number of visitors will continue to grow, and probably at an increasing annual rate, in the years leading up to 1976.

To provide these visitors with an accurate and dramatic review of the first 200 years of our national life, the Smithsonian is planning a number of new exhibitions. While every effort will be made to open many of these new exhibitions early in the Bicentennial period, scholarship and accuracy will not be sacrificed in the interest of haste, since these exhibits must serve to educate as well as inspire.

Through the application of audio-visual and design technology, we propose to project the visitor back in time to the second half of the 18th century. Using building space as a "time corridor," instead of the traditional exhibition hall, the visitor will be surrounded by objects, sights, sounds, smells, and other aspects of the period so that he can participate in the home, work, and leisure of the colonists on the eve of the Revolution. In subsequent years, this new technique may be applied to later periods in American history.

An innovative visitor participation exhibition on the price of independence is also planned. Using interactive devices, the visitor will test his skill in any of several roles--that of a Boston merchant, a Southern planter, etc.--against the known risks of sea trade, civil war between colonies, reluctance to engage in war, fear of defeat and reparations, possible loss of markets in Great Britain, freedom of manufacture, and removal of Mother Country controls over westward expansion.

An exhibition on the three-quarters of the United States not included in the Treaty of Paris of 1783 will relate the historical background, culture, ideas, and people and their daily life in the last part of the 18th Century is also in the planning stage. This exhibition will show that the 13 Colonies of the Revolutionary War shared experiences with what was destined to become a major part of the United States.

Smaller exhibitions will cast light on everyday life in America in the mid-1770's. For example, one is tentatively entitled "Three Meals a Day," showing the American menu in the various colonies, sources of foods, techniques of preparation, and tools used in the production and cooking of meals. Another exhibit will treat the physical and political structure of towns and cities in the colonial era, using artifacts, publications, and graphics to explain the wide variety of institutions created to serve the needs of the people. A third will deal with clearing land, building houses and public buildings, tools, architectural types, and borrowed techniques and modifications applied in the New World. We also plan an exhibition on the evolution of American educational systems in the 17th and 18th centuries.

The Smithsonian will continue to develop the design concept for the Revolutionary War segment of the proposed National Armed Forces Museum Park. Here, on the outskirts of Washington, adjacent to major travel routes between the North and South at Fort Foote, we are planning a facility where visitors will see reconstructions of Revolutionary War stockades, cantonments, and equipment. The displays under consideration will show how the citizen-soldier of 1776 lived while on active duty along the frontier and in garrison towns.

2. National Programs \$120,000

Wherever practicable, these special exhibitions mentioned above will be designed to conform to the needs of our Traveling Exhibition Service. Currently the Smithsonian is circulating some 200 exhibitions among museums, universities, and public institutions throughout the United States. By making these special Bicentennial programs available in every state, we will support the decision of the American Bicentennial Commission that the observances should be national in scope. We expect to expand this service to include performances as well as exhibitions of artifacts.

Under authority of the National Museum Act, we are already counseling museums around the country on how best they can display their collections during the Bicentennial Era. We expect to receive an increasing number of this kind of request as we approach 1976. In addition, many of the requests now being received are seeking help in training museum personnel in restoration, conservation, and display of objects in anticipation of major exhibitions in the next few years. We should provide all the assistance we can, within the limits of authority established in the National Museum Act.

Several national organizations have requested our help in specific areas. For example, the American Association for State and Local History has asked us to help in preparing a handbook on Bicentennial display and events which will be distributed to the Association's 3,000 members in every state, and to others on request. We also anticipate additional requests for advice and technical assistance from the various State Bicentennial Commissions.

3. International Programs 0

While no funds are being requested in fiscal year 1971 for Bicentennial activities at the international level, some work has already begun in this area. For example, the Smithsonian is considering sponsoring and coordinating study programs, research activities, and symposia involving leading scholars from those countries which made the larger contributions to the American War for Independence--Great Britain, France, Poland, Spain, and Germany. It is anticipated that the Smithsonian will be able to borrow significant Revolutionary War period artifacts from private and public collections in these countries for display in the United States during the Bicentennial Era. The Smithsonian also expects to be asked for its advice by museums abroad which will be preparing their own exhibitions showing the history of relations between the United States and the respective host countries.

The preceding paragraphs summarize the concept of the Smithsonian's Bicentennial program, aimed at reaching the broadest possible audience at all levels of interest. To recast the two budget estimates given, \$280,000 for Washington programs and \$120,000 for national programs, into the three inter-related areas of activity, the following expenditure program is proposed for fiscal year 1971:

Exhibitions and performances	\$250,000
Research and publication	50,000
Planning and administration	100,000

Exhibitions and Performances \$250,000

Essential to Smithsonian participation in the Bicentennial is the display of artifacts from the collections, as well as the display of contemporary and period plays, musical works, and folk arts. Exhibitions and performances must be carefully planned to take full advantage of resources and research available. Exhibitions must be fabricated in such a way as to provide high visitor interest and education. They must be designed to conform to available space, both within the Smithsonian premises and for use as traveling exhibitions. To permit the fullest participation in the educational benefits resulting from the proper display of significant historical collections, \$250,000 are needed. These funds will provide the raw materials and workmanship needed to design, produce, install, and circulate exhibitions and performances.

Research and Publication \$50,000

Research is a basic function of the Smithsonian. As indicated above, we have already begun a comprehensive research program into the origins and impact of the American Revolution on American life and national development. Original source material is rapidly disappearing with the passage of time. If the research is to serve fully the needs of the Bicentennial, it must be completed well before 1976 to be reflected in exhibitions, in American scholarship, and in the curricula of our educational systems. An important aspect of this research will be the holding of symposia of leading experts in various aspects of American society, resulting in a distillation of national purpose. To make the most of this research, findings must be published. Some can be published by the Smithsonian; some will best be published commercially. The Smithsonian's collections and scholarship can be used to excellent advantage in the preparation of documentary films for use in classroom showing, on educational and commercial television, and in theatrical distribution. For these purposes a request of \$50,000 is made for fiscal year 1971. The Institution intends to draw on the talents of outside organizations, such as universities and colleges. Special fellowships or limited term appointments will be used wherever possible. In this way any extended increase in staff will be held to a minimum.

Planning and Administration \$100,000

Fiscal year 1971 will be the first year of major Smithsonian-wide involvement in Bicentennial planning. Much of the necessary planning, administration, and coordination of activity will take place in the Office of the Director General of Museums, but other elements of the Smithsonian--notably the National Museum of History and Technology--will need support in developing projects. In addition, increased costs will begin to be incurred by certain of the administrative and central support activities for library reference work, printing, and similar research and exhibition support services.

Funding by Category of Expense

Personnel		\$80,000
Special assistant for Bicentennial planning		
Program assistant	Exhibits specialist	
Clerk-typists (2)		
Travel		20,000
Advisory services	Training	
Research	Consultation	
Transportation		20,000
Borrowing and lending objects		
Traveling exhibitions and performances		
Rent, Communications and Utilities		1,000
Office and exhibit equipment		
Printing		10,000
Guides	Handbooks	
Research publications		
Services		110,000
Exhibitions design and preparation		
Training of museum personnel	Consulting	
Supplies and Materials		90,000
Exhibitions preparation		
Equipment		65,000
Cases for permanent and circulating exhibitions		
Insurance		4,000
Borrowed objects		

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	0	5	5
11 Personnel Compensation.....	\$ 0	\$ 74,000	\$ 74,000
12 Personnel Benefits.....	0	6,000	6,000
21 Travel & Transp. of Persons ..	0	20,000	20,000
22 Transportation of Things	0	20,000	20,000
23 Rent, Comm. and Utilities.....	0	1,000	1,000
24 Printing and Reproduction	0	10,000	10,000
25 Other Services	0	110,000	110,000
26 Supplies and Materials	0	90,000	90,000
31 Equipment	0	65,000	65,000
41 Grants	0	4,000	4,000
TOTAL.....	\$ 0	\$ 400,000	\$ 400,000
<u>Analysis of Total</u>			
Pay Increases.....	0	0	0
Program.....	0	\$400,000	\$400,000

ENVIRONMENTAL SCIENCES PROGRAM

1969 Actual.....	\$	0
1970 Estimate	\$	0
1971 Estimate	\$	600,000

For many years the activities of the Smithsonian Institution have been grouped together for purposes of budget submissions to the President and to the Congress under the headings of buildings: the Museum of Natural History, the National Collection of Fine Arts, the Air and Space Museum, and so forth.

These artificial and cramping categories tend to distort the essential meaning of the Institution. From this misleading listing comes an assumption in the public mind that the Institution has long since given up its mandate "for the increase and diffusion of knowledge among men", and has taken refuge in doing a purely administrative job of keeping public buildings open during prescribed hours of the day.

In the past year, the national mood of uneasiness has become focused on the threatened decline in the quality of the environment to danger levels which may negate the advances of our technology and make a mockery of our culture. Human memory is short. This is the "now" generation, and it is all as if warnings had never been signalled before. The subject is merely becoming urgent at the moment, and therefore all levels of our society are listening at last to what had been the voices in the wilderness, whether they speak of pesticides or of venal manufacturers.

In fact the Smithsonian has always been a single institution for research and publication, and for teaching through exhibits and public education. In the 1870s, the Institution pioneered in investigations of coal smoke (then the smog over cities). Its studies of commercial fisheries in this country paved the way for the massive federal support of everything from fisheries to oceanography. The Smithsonian's measurements of solar radiation in the middle of Washington began in 1907 from the tower of the "castle" on the Mall, presumably with the thought that this was a good clear place in which to operate, have, fortunately, continued down to the present, the longest continuous series of such measurements anywhere. As the data which is being assembled with the aid of computers has now shown, there has been a net decrease of solar radiation in Washington of 16 percent in that period. The unique point is that a widespread decrease of total incident light could have catastrophic consequences for agricultural crop development and maturation ultimately disturbing the life patterns of birds and insects and seed-carrying functions and pollination.

The Smithsonian's collections after years of being considered as collections in a museum, an "attic" bypassed by modern science, are now being projected into the forefront of the environmental crisis. Now, through data processing, science is beginning to realize the inherent value of natural history collections. The rates of change of animal populations along our coasts and in our streams, correlated with changing composition of plant species, provide a time scale and a predictable future. These rates of change are extremely complex and intricate but they can be measured and thus set against a probability curve. From its vast store of data, the Smithsonian is continually being asked by government agencies such as the Agency for International Development, the Corps of Engineers, the Bureau of Commercial Fisheries, and the Federal Water Pollution Control Agency to provide such information. Our collections are thus providing a reliable set of guidelines for tolerable rates of future deterioration, one of the few such in existence. Much more could be done, however, in making these collections fully accessible and useful.

Six years ago, the Atomic Energy Commission was queried about the after-effects of a possible Sea Level Canal across the Isthmus of Panama. The Smithsonian offered to perform an ecological assessment of this proposed momentous manipulation of the environment but was turned down because the climate of understanding of such issues, as recently as six years ago, was not conducive to the Smithsonian being heard. By January 1970, an onsite survey by a committee of the National Academy of Sciences agreed unanimously that continuing ecological monitoring and experimental studies are of critical importance in the whole question of the future of such a canal. In addition, committee members have urged the Smithsonian to continue the present follow-up studies of the oil spill in December 1968 of the tanker "Witwater" off the reefs at Balboa on the Atlantic side of the Canal Zone. These are the first such studies ever made in tropical waters, and one of the very few studies designed to follow the long-term progression of ecological changes resulting from oil pollution.

Since 1964 the Smithsonian has been assembling with private funds a tract of land on the western shore of the Chesapeake Bay, less than an hour from Washington. The Institution will thereby control one small watershed in the two thousand acres of this Chesapeake Bay Center for Environmental Sciences. Members of the Congress from Maryland such as Mr. Morton and Senators Tydings and Mathias, as well as the Chairman of the Anne Arundel County Council and the Mayor of Annapolis, have all acclaimed this move, not only because it presents an opportunity, the only one of its kind near Washington, to set up a demonstration ecological center for research in watershed and estuary control and monitoring, but also because it carries great appeal to the Maryland State Government in its current concern to develop all possible methods of cooperative action in tideland and estuarine studies, vital to the future of our fisheries, recreation, and life quality. This is also consistent with the President's concept of the new Federalism.

In the international sphere, the Smithsonian is active in basic ecological studies, especially in the tropics. Smithsonian staff are assessing environmental change from the Mediterranean to Southeast Asia, and in parts of the Pacific, the Caribbean, and Latin America. Our scientists have been called upon to study the new reef-destructive outbreak of the Crown of Thorns Starfish, and legislation has been introduced into the 91st Congress to support the Institution's research in this outbreak, jointly with that of the Department of the Interior.

For the past four years the Institution has been concerned with implementing the design of an education exhibit hall, to fill an existing space under redesign in the National Museum of Natural History, which will graphically detail the biological world which surrounds us, and relate the steady deterioration of our environment. This hall will contain a variety of visitor interaction devices to provide positive educational feed-back to an estimated four million visitors a year. Tests of such interactive devices in other museums show a 50 percent ratio of retention of the message contained in an exhibit hall designed for educational purposes. The development of this hall can be a significant contribution to environmental education. The recent concern of the Congress with the introduction of a number of bills calling for environmental education indicates a direct reflection of citizen concern. Environmental education is a subtle, complex problem. It strikes perhaps at the roots of what is wrong with education in the United States today. To a consumer-oriented, endless frontier-oriented culture, such as ours, it may be a generation before the present monolithic problems of American education can be assessed sufficiently to redirect our cultural course towards conservation and the limitation of the endless growth of the Gross National Product.

Other aspects of education concern the Smithsonian, whose contacts now span students at the graduate level from more than forty universities, all using Institutional facilities and working with our staff. Within the mix of our instructional activities at the graduate and postdoctoral level there is the opportunity, possessed at present by no single university, to create an interdisciplinary approach toward studies in the environment. As countless recent authors have lamented, there seems to be no room in most current programs on the environment for humanists and social scientists. This omission is serious since the solution to environmental degradation is not to be discovered exclusively in science but must come through an interaction between the sciences and the humanities. Many root causes of the degradation are to be found in social, political, and cultural traditions of our country, such as our ideas on standards of living. In the Smithsonian, unlike a university, departmental lines are not strictly drawn. As a result, current study groups such as our Center for the Study of Man can include primate specialists, anthropologists, social scientists, historians, and ecologists. Internal and external committees derived from this Center are currently considering how to plan for a potential Museum of Man, an educational exhibit demonstration in human ecology--man as part of the environment as opposed to the role of an observer.

If we have described at length some of the current and past activities of the Smithsonian, it is to show that the Institution has not come lately into the field of environmental studies. We have been ahead of the times by collecting the data on the basic elements of the environment that we knew or well suspected would constitute a vast resource for study and education. The Institution is thus an ecological powerhouse, producing basic research information relevant to the environment, as few other institutions can claim to be doing. As Philip Abelson, editor of Science, has said, "the goal of opinion-making should be constructive action. A prerequisite for this is thorough planning based on an adequate fund of knowledge. Scientists can make imaginative contributions to planning, and they can help ensure that the factual bases for decisions are as sound as possible." It is institutions such as the Carnegie Institution of Washington, Rockefeller University, the Marine Biological Laboratory at Woods Hole, and the Smithsonian which typify the special communities of environmental scientists which the National Academy of Sciences' Environmental Studies Board recommended should be set up to study the hazardous state of the nation's environment today.

The Smithsonian, then, sees its participation in improving the quality of man's environment as three-fold: identification and assessment of the components of man's natural surroundings and of his cultural development; monitoring of change for predictive purposes; and education at all levels of public interest. In order to make a significant contribution in these areas, the Institution requests an appropriation of \$600,000. These funds would be used as follows, drawing upon the Smithsonian's own resources of professional staff, laboratories, and natural areas, but with a major effort to integrate and apply these resources by drawing upon the talents of outside investigators and advisers.

1. Identifying plants and animals as bioindicators and benchmarks

Plants and animals serve as excellent continuous sentinels that warn of impending danger in the same way as the "mine canary" was used to detect deadly gases in coal mines. Many plants and animals are sensitive to various dangerous pollutants produced by man and can be used to warn of critical impending changes, which may be irreversible. The very existence of certain organisms also may serve as benchmarks to measure the impact of civilization on the environment.

Studies at Smithsonian facilities would increase our knowledge of these management tools. The National Museum of Natural History and the Smithsonian Tropical Research Institute would be heavily involved in this effort. Funds in the amount of \$100,000 are requested for field studies and publications that would identify and isolate those components of the environment of special significance as bioindicators.

2. Monitoring rates and processes of change

Selected natural communities would be studied to determine their productivity, variation, and the effect of man's pollution. Quantitative studies of comparable ecosystems would provide data for intelligent land use. The detailed studies of preserved natural areas are essential to measure the rates of change and thus to predict future changes. The Chesapeake Bay Center and the Smithsonian Tropical Research Institute would be central to this effort. In addition, our Radiation Biology Laboratory, in conjunction with the Center for Short-Lived Phenomena and the Smithsonian Astrophysical Observatory with its worldwide network of tracking stations provides us with some of the tools for environmental monitoring techniques and training in them, as well as providing strategically located centers for monitoring studies. Enhancement of current activity with key additional researchers would fill gaps in existing competence and draw together ongoing studies. Four additional scientists, with funds for equipment and research support, are requested (\$150,000).

3. Undertaking research in social biology

The Smithsonian would step-up development of its nascent program of studies of man evolving and man today. Building on our own competence, knowledge, and collections data in the National Museum of History and Technology, the Center for the Study of Man, Anacostia Neighborhood Museum, and other units, the Institution would bring together additional humanities scholars and social biologists in fellowship offerings and a series of seminars. Funds in the amount of \$75,000 are requested for a cultural anthropologist, a social historian, and for fellowship and seminar expenses.

4. Communicating environmental knowledge to a wider public

The Institution proposes to continue to produce its educational exhibit hall on the environment and to develop a seminar series for a continuing discussion and debate with ecologists, educators, and planners representing the interests of government and private decision makers. The Smithsonian has already conducted three such international seminars, the first on Science, Culture and Society (1965), the second The Fitness of Man's Environment (1967), and the third on Man and Beast (1969), a study of recent advances in the science of social behavior. All of these seminars have been or are being published. They can be enlarged easily to provide the forum for discussion which members of the Congress, as well as other groups, continually recommend. Funds in the amount of \$125,000 are requested for a program planner, contract exhibits expenses, travel, and costs of program participants.

5. Developing a National Referral Center for environmental data

The Smithsonian would develop its electronic data processing program for monitoring, retrieving, and correlating ecological and environmental data. This would be patterned on and complementary to the gradual development of our Oceanographic Sorting Center. Staff would be assigned to speed up collection data input and processing of terrestrial and aquatic biological populations from which baseline data on predictive environmental models can be constructed. This activity is fundamental to all environmental assessment and should be recognized

as a special high priority program, supportive of many of the corrective projects of federal and state agencies. Funds in the amount of \$150,000 for four data-handling technicians and three computer specialists and computer services are requested.

This proposed activity would enable the Smithsonian to respond in a way that is supportive of the concerns of the President, the Congress, and the nation as an extension of our underlying goal for many years, the story of man's relation to his environment. As stated in the Smithsonian's current Annual Report, "For the present phenomenon is that our culture and our environment are no more at war with each other on terms of rough equality, but that rather our material culture is in danger of destroying our old presumed enemy, nature." Thus we should live up to our original mandate for education and diffusion of knowledge.

Funding by Category of Expense

Personnel		\$200,000
Program planner	Biologists (4)	
Cultural anthropologist	Social historian	
Data technicians (4)	Computer specialists (3)	
Travel		35,000
Field research	Seminar participants	
Transportation		5,000
Field expeditions		
Printing		25,000
Research reports	Seminar proceedings	
Services		210,000
Exhibit preparation	Computer processing	
Seminars and fellowships		
Supplies and Materials		45,000
Field research and laboratory projects		
Equipment		<u>80,000</u>
Exhibit cases	Laboratory needs	
Total		\$600,000

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>0</u>	<u>14</u>	<u>14</u>
11 Personnel Compensation.....	\$ 0	\$ 186,000	\$ 186,000
12 Personnel Benefits.....	0	14,000	14,000
21 Travel & Transp. of Persons ..	0	35,000	35,000
22 Transportation of Things	0	5,000	5,000
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	25,000	25,000
25 Other Services	0	210,000	210,000
26 Supplies and Materials	0	45,000	45,000
31 Equipment	0	80,000	80,000
TOTAL.....	\$ 0	\$ 600,000	\$ 600,000
<u>Analysis of Total</u>			
Pay Increases	0	0	0
Program.....	0	\$600,000	\$600,000

ACADEMIC PROGRAMS

1969 Actual	\$544,000
1970 Estimate.....	\$535,000
1971 Estimate.....	\$615,000

A major Smithsonian objective is to make its learning resources available to the formal educational community and to the general public. At the higher education level, the Institution, through the Office of Academic Programs, develops and coordinates fellowship programs through a variety of cooperative agreements with the nation's universities. The Office promotes research opportunities and advanced study training for doctoral candidates and postdoctoral investigators. Seminars in various curatorial and disciplinary areas are conducted which are central to the interests of the students and the Smithsonian's research efforts. Formal educational activities below the university level are also a responsibility of the Office. These include the popular escorted tours for schools, the preparation of teaching guides, lectures, and audio-visual materials. Public use of the educational facilities of the Institution is growing rapidly at all levels of training. The Smithsonian is considered a significant supplementary educational resource by colleges and universities and by elementary and secondary school systems.

An increase of \$75,000 is requested including \$60,000 for higher education and research training in nine disciplines, and \$15,000 for the expansion of escorted tours for school children. Also requested are \$5,000 for necessary pay purposes.

Need for Increase1. Higher education (\$60,000)

The Smithsonian seeks to increase from 40 to 44 the number of stipends it is able to offer visiting investigators from the nation's colleges and universities to receive specialized training in research within its facilities. The disciplines to be served and the number of associated Smithsonian professional staff in each are as follows: American history, 26; anthropology, 18; environmental biology, 23; evolutionary and behavioral biology (tropical zones), 7; evolutionary and systematic biology, 65; history of art and music, 23; history of science and technology, 30; museum studies, 25; physical sciences, 47. The interaction of the Smithsonian graduate program with museum research, and how this interaction benefits the students, the Institution, and the nation, is demonstrated on the following page.

2. Elementary and secondary education (2 positions, \$15,000)

The Institution also requests one position for an instructor in elementary education in the field of technology, to arrange for school tours of exhibits in the National Museum of History and Technology dealing with actual demonstrations of crafts and skills such as weaving or ginning, and with themes of great importance from our history, such as industrial research, the path of invention, and the history of science. One such staff member could develop about four tour patterns which could then be opened to approximately four school groups daily. No school tours can now be offered in these areas for lack of a staff member to research and prepare scripts.

A second position is required for an audio-visual services technician to set up films and sound tapes to be presented to school children to enrich and supplement their present tour activities. Such elements may be regarded as experiments for the eventual improvement of exhibits, to be tried out in the halls on actual audiences of school children. No such services are available at present, while the total number of tours has increased to an estimated annual total (for 1969-1970) of 3,000, serving almost 100,000 school children, with an unpaid volunteer "docent", or escort, staff of 140.

Academic Programs**Examples of Research Conducted Through the Graduate Fellowship Program**

No better way to guarantee the quality of research has ever been found than to maintain an environment conducive to setting and attaining the highest intellectual goals. Junior investigators serving their apprenticeship in research jostle comfortable assumptions and insist on the unexpected, while giving freely of their enthusiasm and alert insights. In return, the senior established professional staff member helps to guide the development of research skills and offers counsel on the interpretation of published literature and observations that may be in doubt. Student and supervisor are like two knives that keep each other sharp.

One example of benefits to students, the nation, and the Institution, derived from the existence of this environment, is the work being generated by a doctoral candidate from the University of Kansas assigned to the Smithsonian's Department of Paleobiology. While at his home university, this student developed a strong interest in the systematic study of upper paleozoic invertebrate fossils. Because his interests were closely aligned to the research objectives of the Smithsonian's professional staff, because of the extensive collections here at the Institution, and because formal academic arrangements existed with his university, he was selected to receive a Smithsonian fellowship. At the present time, the student is working under the direct supervision of the curator of the Division of Invertebrate Paleontology, widely known as one of the experts on the usage of fossil remains for subsurface exploration.

Their collaborative effort is expected to yield an understanding of previously unknown relationships of specific ancient fossil colonies with today's living counterparts. Information on the size, shape, development, and distribution of fossil colonies will clarify further the existing knowledge of biostratigraphy--the discipline most directly related to the successful exploration of petroleum resources. Further, the publications resulting from this student's activity at the Institution will add to the scarce stockpile of current base-line information concerning the balance of a particular segment of the past and present ecological systems.

Another example would be a Smithsonian fellowship holder that is pursuing the study of the significance of American small boat building. He is a doctoral candidate from the University of Indiana. His dissertation, to be submitted to the University in late 1970, will deal with the cultural and technological necessity of the appearance of the small boat building tradition in the upper east coast of this country. The development and absorption by the hardy New Englanders of the precise measurements and complex knowledge required by this art is a reflection of man's capacities when faced with a need to gain a livelihood from the sea. The student's interests parallel the expertise of professional staff members in the Museum of History and Technology. In addition to the direct educational benefits accruing to the doctoral candidate, the Institution will gain because the information will be used in exhibits planned for the summer of 1970.

The Institution should take the initiative in extending the fellowship program. The Smithsonian professional research staff of 350 is willing to supervise over 150 students and investigators per year. Our actual ability to award stipends is far below this figure. This program is potentially one of the most beneficial to the nation in the entire array of institutional investments.

A partial listing of the home universities of fellowship recipients in fiscal year 1970 include: the universities of Brown, California, Columbia, Duke, Florida State, George Washington, Harvard, Indiana, Johns Hopkins, Kansas, New Hampshire, New York, North Carolina, Pennsylvania, Pittsburgh, Rhode Island, Southern California, Stanford, Tulane, Washington, Wisconsin, and Yale.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>18</u>	<u>2</u>	<u>20</u>
11 Personnel Compensation.....	\$ 182,000	\$ 19,000	\$ 201,000
12 Personnel Benefits.....	14,000	1,000	15,000
21 Travel & Transp. of Persons ..	10,000	0	10,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	1,000	0	1,000
24 Printing and Reproduction	0	0	0
25 Other Services	322,000	60,000	382,000
26 Supplies and Materials	3,000	0	3,000
31 Equipment	3,000	0	3,000
TOTAL.....	\$ 535,000	\$ 80,000	\$ 615,000
<u>Analysis of Total</u>			
Pay Increases	\$13,000	\$5,000	\$18,000
Program.....	\$522,000	\$75,000	\$597,000

Administrative and Central Support Activities--Office of the Treasurer

1969 Actual	\$558,000
1970 Estimate.....	\$542,000
1971 Estimate.....	\$607,000

This Office manages the income and expenditures of the Institution and provides the Secretary with recommendations related to the allocation of funds. It is composed of the Office of Programming and Budget, the Contracts Office, the Accounting Division, and the Internal Audit Office. These sections provide analytical and technical support in financial management matters. Planning, budgeting, accounting, auditing, and reporting center in the Treasurer's Office. Additional funding is required to meet a rising and more complex workload.

An increase of \$60,000 is requested to cover additional workmen's compensation and public service mail, and for accounting purposes. An additional \$5,000 are requested to cover necessary pay increases.

Need for Increase--Staff increases required consist of a clerk-typist in the Office of the Treasurer and a fiscal clerk. The Office of the Treasurer has only one secretary. This office also provides typing for the Internal Audit Office. An additional clerk-typist is requested to provide typing assistance for these offices.

The Accounting Division needs to acquire direct source data automation of accounting transactions. This would eliminate delays and costs of keypunching, and result in faster and better accounting control. The accounting transaction would be typed once and automatically punched on paper tape. The paper tape could then be put into the computer without further handling and the machine would also be used as a remote terminal device to the computer. A fiscal clerk would be needed to operate the machine, plus renting the machine, supplies and forms, and some related equipment.

As additional costs to this Office, the Department of Labor has requested \$32,000 reimbursement to the Workmen's Compensation Fund. Of this amount, \$16,000 are already in the base, and the Smithsonian is requesting \$16,000 additional. Postal rate increases and a higher volume of Smithsonian mail require a projected additional \$20,000 over the current expenses of about \$150,000.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>31</u>	<u>2</u>	<u>33</u>
11 Personnel Compensation.....	\$ 339,000	\$ 14,000	\$ 353,000
12 Personnel Benefits.....	26,000	17,000	43,000
21 Travel & Transp. of Persons ..	1,000	0	1,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	150,000	24,000	174,000
24 Printing and Reproduction	0	0	0
25 Other Services	20,000	5,000	25,000
26 Supplies and Materials	3,000	5,000	8,000
31 Equipment	3,000	0	3,000
TOTAL.....	\$ 542,000	\$ 65,000	\$ 607,000
<u>Analysis of Total</u>			
Pay Increases.....	\$29,000	\$5,000	\$34,000
Program.....	\$513,000	\$60,000	\$573,000

Administrative and Central Support Activities--Division of Performing Arts

1969 Actual	\$204,000
1970 Estimate....	\$168,000
1971 Estimate....	\$221,000

The Division of Performing Arts plans and presents the annual Festival of American Folklife; programs in contemporary arts forms; many children's activities, including a highly acclaimed puppet theatre; touring performances which schedule folklife presentations, lectures, and concerts to universities, colleges, and community centers across the nation; the American College Theatre Festival; and other public presentations related to the growth of American popular culture. Its objective is to use music, theatre, and dance to illuminate and preserve the folk traditions that comprise the cultural heritage of this country--to add collections of performances and demonstrations to the Smithsonian's collections of artifacts. Enthusiastic public attendance and participation in these events have testified to the value of adding this new dimension to traditional museum visiting.

An increase of \$50,000 is sought for 1971 in order to sustain this activity and to maintain high quality production standards. An additional \$3,000 are requested for necessary pay increases.

Need for Increase--Increased funding of \$15,000 is needed for the Festival of American Folklife. Public attendance at this living exhibition of traditional American culture has increased 25 percent per year since its inception in 1967, reaching an estimated 618,000 people in 1969. Significant outside funding for this event has been received in the past from private sources such as the Institute of Texas Cultures, the AFL-CIO, and the States of Pennsylvania and Arkansas; but these private donations cannot begin to meet all the necessary costs of production, staff, travel to search out and obtain native craftsmen, performers, and folk art objects, field research, and supplies and equipment. Private foundations have in fact, expressed the opinion that the Festival of American Folklife is no longer an experiment, but rather the most important popular presentation of American folk cultures regularly held in the United States and, as such, the Smithsonian should attempt to establish an adequate federal appropriation for its costs.

The American College Theatre Festival provides a forum for the presentation of the best achievements of the nation's colleges and universities in the arts. In the selection of the ten best productions chosen from participating institutions, this Festival offers national recognition and high incentive toward better standards of excellence and scholarship. Entrants have substantially increased over the first year of this event, and public response has substantially added to the Smithsonian's responsibility to provide an acceptable level of production support. The requested \$12,000 will provide services for the design and fabrication of staging facilities, rental of equipment, and supplies.

Basic staff support is insufficient to meet the increased demands on the Division of Performing Arts for technical assistance and advice. Requests from state groups and other organizations have risen fivefold in the past two years, totaling more than 50 specific requests in the past year. The highly specialized nature of these inquiries demand detailed attention. For example, over the past two years the Division has developed the concept and plans for the performing and cultural programs for Summer in the Parks; helped plan the United States' participation in the cultural programs of the XIX Olympiad in Mexico City; and assisted in the planning of a national program in the arts for the Girl Scouts of America. Increased staff and consultant services are needed if the Division is to meet these responsibilities. Funds are requested for a fiscal clerk and a clerk-typist (\$12,000) and for contractual services (\$11,000).

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	(7)	(2)	(9)
11 Personnel Compensation.....	\$ 92,000	\$ 14,000	\$ 106,000
12 Personnel Benefits.....	7,000	1,000	8,000
21 Travel & Transp. of Persons ..	3,000	0	3,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	9,000	5,000	14,000
24 Printing and Reproduction	0	0	0
25 Other Services	27,000	11,000	38,000
26 Supplies and Materials	7,000	10,000	17,000
31 Equipment	23,000	12,000	35,000
TOTAL.....	\$168,000	\$ 53,000	\$ 221,000
<u>Analysis of Total</u>			
Pay Increases	\$ 8,000	\$ 3,000	\$ 11,000
Program.....	160,000	50,000	210,000

Administrative and Central Support Activities--
Office of Personnel and Management Resources

1969 Actual	\$259,000
1970 Estimate.....	\$293,000
1971 Estimate.....	\$347,000

The Office of Personnel and Management Resources is responsible for a wide range of program functions including special studies; organizational development; manpower planning, utilization and control; and management evaluations. Additionally, this Office serves as a central staff office for job classification, recruitment and placement, employment relations and training, and wage and salary administration. Advice and technical assistance is provided to all levels of management, the professional staff, and to all employees in a wide range of specialized job categories.

An increase of \$50,000 is requested to strengthen the personnel specialist and clerical staff in order to meet Institutional needs. An increase of \$4,000 is sought also for necessary pay purposes.

Need for Increase--In recent years the Congress has significantly increased the Smithsonian's activities with the enactment of over twenty major programs. Appropriations have increased to \$28,000,000 and manpower authorizations have increased from 500 to over 2,000. New museums, including the National Museum of History and Technology, the National Portrait Gallery, the National Collection of Fine Arts, and the Joseph H. Hirshhorn Museum and Sculpture Garden have been added. As a result of Congressional support, all Smithsonian bureaus, located from Massachusetts to Panama, are establishing new research, exhibit, and public service objectives and priorities. Their directors seek guidance from the Office of Personnel and Management Resources in the analysis and deployment of manpower and in better ways of achieving organizational effectiveness. These needs have placed great demands upon this Office.

Indicative of the Office's workload is the number of individual personnel actions, each requiring analysis and implementation. Over 3,000 personnel requests are submitted annually. For the six months period January through June 1969, approximately 1,800 actions were processed. In addition, the Office had over 7,000 visitors, 51,000 telephone calls, and 2,000 letters last year. This activity is expected to increase during the remainder of this fiscal year and next. The Civil Service Commission has greatly increased the number and variety of special programs in the personnel area. New Executive Orders and Commission directives require expanded programs for the disadvantaged, the socially deprived, promotions, awards, appeals, discrimination, and discipline. The additional positions requested are urgently needed to meet these needs. A comparative study of the ratio of personnel office staff in other agencies to the number of employees serviced reveals that the staffing in the Smithsonian's Office is 50 to 100 percent below that of other offices.

Two personnel management specialists and a clerk-typist and funds for travel, training, other services, and equipment are requested (\$50,000).

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>16</u>	<u>3</u>	<u>19</u>
11 Personnel Compensation.....	\$ 256,000	\$ 37,000	\$ 293,000
12 Personnel Benefits.....	19,000	2,000	21,000
21 Travel & Transp. of Persons ..	8,000	1,000	9,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	7,000	10,000	17,000
26 Supplies and Materials	2,000	0	2,000
31 Equipment	<u>1,000</u>	<u>4,000</u>	<u>5,000</u>
TOTAL.....	\$ 293,000	\$ 54,000	\$ 347,000
<u>Analysis of Total</u>			
Pay Increases	\$18,000	\$4,000	\$22,000
Program.....	\$275,000	\$50,000	\$325,000

Administrative and Central Support Activities--Health Units

1969 Actual	\$48,000
1970 Estimate.....	\$50,000
1971 Estimate.....	\$61,000

Smithsonian Health Units located in the museum buildings provide first-aid and medical assistance to employees and to visitors.

An increase of \$10,000 is requested to establish a Health Unit for the buildings on the south side of the Mall. An increase of \$1,000 is sought also for necessary pay purposes.

Need for Increase--The two small health units now in existence in the Natural History and History and Technology buildings are insufficient to meet the emergency needs of employees and visitors. Visitors to the air and space, art, and special exhibits on the south side of the Mall now number three million a year. There are no medical facilities in these buildings to offer first-aid and other medical assistance to either visitors or to employees. This request is for a nurse and supplies and equipment to establish a health unit in the Arts and Industries Building. Smithsonian responsibility to its visitors as well as staff requires that this facility be available as soon as possible.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>2</u>	<u>1</u>	<u>3</u>
11 Personnel Compensation.....\$	31,000	\$ 7,000	\$ 38,000
12 Personnel Benefits.....	2,000	1,000	3,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	0	0	0
25 Other Services	15,000	0	15,000
26 Supplies and Materials	2,000	3,000	5,000
31 Equipment	0	0	0
TOTAL.....	\$ 50,000	\$ 11,000	\$ 61,000
<u>Analysis of Total</u>			
Pay Increases	\$2,000	\$1,000	\$3,000
Program.....	\$48,000	\$10,000	\$58,000

Administrative and Central Support Activities--Information Systems Division

1969 Actual.....	\$171,000
1970 Estimate.....	\$163,000
1971 Estimate.....	\$267,000

The Information Systems Division designs and applies computer technology to the Institution's data processing needs. Included in the Division's activities are the development of systems for indexing and retrieving data, especially that associated with objects and specimens in the collections; providing mathematical and statistical analysis techniques to aid Smithsonian researchers in interpreting and presenting data; and installing systems for library, accounting, personnel, property control, and other management purposes.

An increase of \$100,000 is requested to modernize museum and laboratory information handling techniques in order to improve significantly the quality of research, access to data pertaining to the collections, and reference services to the public. An additional \$4,000 are requested for necessary pay increases.

Need for Increase--The Institution, because of its stewardship of the National Collections and associated reference documents, possesses an unmatched assembly of materials tracing man's physical, cultural, and technological development and his natural surroundings. These collections in art, history, and science now number well over 60 million objects. The Smithsonian continues to acquire and protect new objects at the rate of one million a year. Not only are these collections the basic resource for the Institution's exhibit program, but each year thousands of schoolchildren, collectors, scientists, and historians ask questions pertaining to individual and groups of objects. Traditional indexing and recordkeeping systems cannot handle those questions which often cut across subject matter, time, and geographical lines.

The information contained in the collections can have direct bearing on the solution to cultural and biological problems. For instance, one project presently being conducted by outside investigators involves the study of 20,000 human skulls in the National Collections to determine if any correlation exists between dental disease and environment. The time it would take to complete this project, and others like it, would be greatly reduced if information was already stored in a data bank and available for retrieval and analysis.

Five years ago, the Institution first began to explore automation methods for collection information in order to make it more accessible. Some progress has been made. The feasibility and usefulness of automation has been demonstrated by the joint efforts of the National Museum of Natural History and the Information Systems Division in pilot studies (primarily on birds, crustacea, rocks, and minerals) of an information storage and retrieval system. These studies must be implemented and the system gradually extended throughout the natural history collections. In another museum, the National Portrait Gallery and the Division are developing a computer program based on the Gallery's Catalog of American Portraits to permit the retrieval of a great variety of research data about portraits of distinguished Americans, their subjects, and the artists. Already the Catalog lists more than 30,000 portraits.

The Division has the computer capacity for handling more data, but it has reached the limit of its capacity to analyze and design systems before actual computer processing is possible. Much of the effort of the present staff of six systems analysts and programmers must go to maintain and update computer programs that have been developed.

The greatest need of the Information Systems Division is for programmer/analysts to develop, test, and install new systems. Funding for four programmer/analysts (\$55,000) and for travel, equipment rental, computer time, and other services (\$45,000) is requested.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>10</u>	<u>4</u>	<u>14</u>
11 Personnel Compensation.....	\$ 130,000	\$ 55,000	\$ 185,000
12 Personnel Benefits.....	7,000	4,000	11,000
21 Travel & Transp. of Persons ..	3,000	2,000	5,000
22 Transportation of Things	0	0	0
23 Rent. Comm. and Utilities.....	12,000	12,000	24,000
24 Printing and Reproduction	0	0	0
25 Other Services	2,000	27,000	29,000
26 Supplies and Materials	2,000	0	2,000
31 Equipment	7,000	4,000	11,000
TOTAL.....	<u>\$ 163,000</u>	<u>\$ 104,000</u>	<u>\$ 267,000</u>
<u>Analysis of Total</u>			
Pay Increases	\$ 8,000	\$ 4,000	\$ 12,000
Program.....	\$155,000	\$100,000	\$255,000

Administrative and Central Support Activities--
Smithsonian Institution Libraries

1969 Actual	\$586,000
1970 Estimate.....	\$629,000
1971 Estimate.....	\$793,000

The Smithsonian Institution Libraries are essential to the effective performance of the Institution's programs in research, exhibitions, and the curating of the National Collections. The Libraries' resources of some 750,000 volumes and periodicals in the fields of art, science, and history have come to be widely used also by the educational and research activities of Government agencies, schools, museums, and the general research community.

An increase of \$150,000 is requested to raise the level of book and journal purchases, to improve reference services, and to manage rare book collections. In addition, \$14,000 are sought to help meet necessary pay increases.

Need for Increase--The Libraries' program is devoted to only basic traditional functions. It offers retrieval and delivery services for book and journal materials, standard bibliographical cataloging, and reference and information services in all subjects. These activities are operating with about one-half the necessary financial and staff resources for basic services required by the Smithsonian's museums, galleries, and laboratories. The budget request for fiscal year 1971 provides for only partial attainment of an adequate basic library program. No new or advanced programs or facilities are sought. The Libraries have taken every opportunity to improve the quality of its operations. Emphasis has been given to streamlining portions of the collections and the curtailment of low-priority services.

Basic needs fall into the following complementary areas of library operations.

1. Acquisition and maintenance of books and journals (4 positions, \$106,000)

This request includes \$15,000 for the purchase of journals (860 titles), \$37,000 for the purchase of monographs, technical reports, and documents (3,700 titles), and \$15,000 for binding, filming, and other processing.

The Libraries should be acquiring about \$175,000 worth of purchased documentary material a year to cover art, history, and science subjects. This estimate is based on known staff needs. In fiscal year 1969, only \$47,000 were available for this purpose for a deficit of \$128,000. By 1971, the \$175,000 will be inflated by rising costs to \$190,000. The requested budget for documentary material in 1971 is \$99,000. With these requested funds, total buying power will be about 3,700 monographs (three titles per Smithsonian professional, technical, and administrative staff member) and 4,700 journals (four titles per such staff member).

The total annual requirement for binding and preservation is approximately \$50,000 for 10,000 volumes. In fiscal years 1969 and 1970, \$15,000 were available to do about 3,000 books each year. With the requested additional \$15,000, 6,000 books can be bound and preserved in fiscal year 1971. This will leave some 18,000 volumes unprocessed for the three year period, or a cumulative backlog of \$90,000 work.

The request for new positions includes a manager for the important gift and exchange program, which brings essential library materials to the Smithsonian at little cost, and three cataloger--indexer technicians. It is

estimated that each technician can assist with the cataloging and indexing of \$10,000 of new documentary materials a year. The remaining material will be made available for limited use through gross inventory methods.

2. Reference and document delivery services (2 positions, \$10,000)

The Libraries had 15 positions in fiscal year 1969 for information, reference, interlibrary borrowing and lending, photocopying, paging and messenger, and related services. This is one library staff member for each 78 Smithsonian staff members involved in research, exhibition, education, and administrative work. Two additional technicians would raise the Libraries' service staff to 17 positions, or one for every 69 Smithsonian staff members. This increase would also permit the Libraries to improve services to Government agencies and to non-Smithsonian scholars, students, and the general public. Some 70,000 reference questions were handled in fiscal year 1969.

3. Process management and improvement (\$15,000)

An additional \$15,000 are requested for computer services for purchasing, cataloging, and other library management functions. The Libraries estimate that \$9,000 of computer time in fiscal year 1969 did the work of three library technicians that would cost \$16,000. Further innovations in automation and process improvement should reduce the rate of growth of the Libraries' staff to accommodate increased budgets for library materials.

4. Special collection management (2 positions, \$19,000)

A librarian and a technician are required to service rare and valuable books. The Smithsonian, because of the nature of its research and collections, has been required to acquire a number of publications issued in limited editions. These have greatly increased in monetary value over the years because of their rarity. Few libraries other than the Smithsonian now have these materials so they have become important as a national resource and more valuable as a marketable commodity. Many of these books are now interfiled on the open shelves in the general collections and need identification, preservation, and protection. The Institution also attracts gifts of books, many of which are rare. In 1969, the Smithsonian Institution received the Dwight-Tucker Ornithological Collection, valued at nearly \$100,000, containing materials which should not be housed on open shelves in the generally accessible areas of the libraries.

Object Class	1970 Base	Increase Requested	1971 Estimate
Number of Permanent Positions	<u>44</u>	<u>8</u>	<u>52</u>
11 Personnel Compensation.....	\$492,000	\$ 66,000	\$558,000
12 Personnel Benefits.....	37,000	5,000	42,000
21 Travel & Transp. of Persons ..	5,000	2,000	7,000
22 Transportation of Things	1,000	0	1,000
23 Rent, Comm. and Utilities.....	4,000	9,000	13,000
24 Printing and Re-production	23,000	15,000	38,000
25 Other Services	11,000	15,000	26,000
26 Supplies and Materials	49,000	29,000	78,000
31 Equipment	7,000	23,000	30,000
TOTAL.....	<u>\$629,000</u>	<u>\$164,000</u>	<u>\$793,000</u>
<u>Analysis of Total</u>			
Pay Increases	\$34,000	\$14,000	\$48,000
Program.....	\$595,000	\$150,000	\$745,000

Administrative and Central Support Activities--Photographic Services Division

1969 Actual	\$218,000
1970 Estimate.....	\$237,000
1971 Estimate.....	\$265,000

The Photographic Services Division supplies photographic services required to meet research, documentation, conservation of collections, exhibition, and publication needs, and to help in answering public inquiries. This work involves still and motion picture photography, developing and printing, obtaining specialized commercial photographic services, and providing technical assistance and training in field photography to staff members.

An increase of \$25,000 is requested to add essential laboratory technicians, to augment the funds available for commercial services, and to repair and replace obsolete equipment. Funds in the amount of \$3,000 are also requested for necessary pay.

Need for Increase--The growth of Smithsonian curatorial, exhibits, and research activities has increased the requirements and requests for quality photographs and slides. In fiscal year 1969, the Photographic Services Division produced 21,000 negatives, 14,000 color slides, 50,000 microframes, and 111,000 prints. The Division contributed to the completion of 73 new exhibit units in eight main exhibition halls and 42 special temporary exhibitions. Of special note was the photographing of a major portion of the recently acquired Lilly Collection of some 6,000 gold coins.

Despite these accomplishments many important photographic requests could not be met. The staff has not grown in five years despite an increasing workload. Several reassessments have been made within the Division resulting in greater productivity and a reduced service timetable.

Two lab technicians are needed to relieve the twelve photographers in the three laboratories (serving the National Museum of History and Technology, the National Museum of National History, the National Air and Space Museum, and other units) who spend a total of approximately 17 hours each day on low level duties including microfilming; print washing, drying, straightening, sorting and reconciling with orders; negative filing; and transporting and setting up equipment. Relieving these highly skilled employees of these simple, but time-consuming tasks, would enable them to reduce the backlog of several hundred orders. There are no technicians in the Division.

The photographic laboratories are not equipped to perform color and motion picture film processing, nor the preparation of mural-size prints, xerographic prints, duplicate transparencies, etc. Requests for commercial services of this type in support of the exhibits and other programs are increasing and prices are rising. Several thousand dollars' worth of work requests could not be met in fiscal year 1969 because of the lack of funds.

Many of the pieces of darkroom processing and printing equipment, purchased at the time of the Division's establishment in 1959, have deteriorated to the point where repairs no longer produce satisfactory operations. New equipment should allow five to seven years of trouble-free service. One enlarger, one printer, and one print straightener are required.

Funds are requested for two laboratory technicians and for commercial photographic services, repairs, supplies, and the replacement of wornout equipment (\$25,000).

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>18</u>	<u>2</u>	<u>20</u>
11 Personnel Compensation.....	\$ 189,000	\$ 12,000	\$ 201,000
12 Personnel Benefits.....	16,000	1,000	17,000
21 Travel & Transp. of Persons ..	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	0	0	0
24 Printing and Reproduction	10,000	5,000	15,000
25 Other Services	1,000	2,000	3,000
26 Supplies and Materials	19,000	5,000	24,000
31 Equipment	<u>2,000</u>	<u>3,000</u>	<u>5,000</u>
TOTAL.....	\$ 237,000	\$ 28,000	\$ 265,000
<u>Analysis of Total</u>			
Pay Increases	\$17,000	\$3,000	\$20,000
Program.....	\$220,000	\$25,000	\$245,000

Administrative and Central Support Activities--Smithsonian Institution Press

1969 Actual	\$ 577,000
1970 Estimate.....	\$658,000
1971 Estimate.....	\$740,000

The Smithsonian Institution Press publishes the results of the Institution's research, education, and exhibits programs. It issues numerous research studies in the fields of anthropology, biology, history, and technology. It produces catalogs that document special and permanent exhibitions and popular information booklets that describe and illustrate the National Collections. Press functions include the approval and editing of manuscripts, design of publications, procurement of printing, and distribution of 100 works annually. Over 300,000 copies of publications were distributed in fiscal year 1969.

An increase of \$75,000 is requested to meet a growing workload of exhibition and collection catalogs and research reports. Funds will be used for additional technical and clerical employees and for printing costs. An amount of \$7,000 is requested also for necessary pay purposes.

Need for Increase--Catalogs of exhibits extend the informational and educational content of exhibits beyond the walls of the museum long after the exhibits are closed. Catalogs of collections are a basic reference for persons all over the world who are unable to examine the collections directly. The Smithsonian recently has opened the National Collection of Fine Arts and the National Portrait Gallery. The Renwick Gallery will add an additional exhibit catalog workload. A number of major collection catalogs are pending in the National Museum of History and Technology. These are national museums, devoted to the display and commemoration of American history and culture, and their catalogs should rank with the quality of those issued by other leading museums. Funds for these catalogs are unavailable from other publications programs, because resources are insufficient already to publish research reports.

Support of Smithsonian research is wasted when that research remains unreported. This is especially true of scientific results which are typically basic data used for the advancement of applied research in Government agencies, industry, and universities. An expanded staff of scientists and historians and greater research productivity has caused large backlogs of unpublished research in the recent past. Smithsonian authors have been forced to attempt to publish outside of the Smithsonian. Sources of outside publishing are difficult to find for descriptive museum publications.

A continuing rise in the volume of manuscripts ready for submission is expected in fiscal year 1971 as well as further inflation in printing costs. The Press has increased its efficiency through revised procedures and has reduced the per-page cost of printing by using improved technologies. Revised formats and standardization of style in five series (Smithsonian Contributions to Earth Sciences, Zoology, Paleobiology, Botany, and History and Technology) produced economies and a substantial gain in effectiveness. Economies obtained through such means have leveled off and the printing workload can be met only by increasing Press funds. An additional \$63,000 in printing funds is requested.

For fiscal year 1971, two additional employees are needed in the Press: a secretary to assist five professionals in the production and design sections, and an indexer to assist authors and editors in the task of preparing indices to books and monographs. Funding in the amount of \$12,000 is requested for these employees.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>21</u>	<u>2</u>	<u>23</u>
11 Personnel Compensation.....	\$ 271,000	\$ 18,000	\$ 289,000
12 Personnel Benefits.....	20,000	1,000	21,000
21 Travel & Transp. of Persons ..	3,000	0	3,000
22 Transportation of Things	0	0	0
23 Rent, Comm. and Utilities.....	1,000	0	1,000
24 Printing and Reproduction	353,000	63,000	416,000
25 Other Services	5,000	0	5,000
26 Supplies and Materials	3,000	0	3,000
31 Equipment	2,000	0	2,000
TOTAL.....	\$ 658,000	\$ 82,000	\$ 740,000
<u>Analysis of Total</u>			
Pay Increases	\$23,000	\$7,000	\$30,000
Program.....	\$635,000	\$75,000	\$710,000

BUILDINGS MANAGEMENT DEPARTMENT

1969 Actual	\$7,451,000
1970 Estimate	\$8,422,000
1971 Estimate	\$8,875,000

The Buildings Management Department protects, maintains, and operates eight major buildings, including the original Smithsonian Institution building, the National Museum of Natural History, the National Museum of History and Technology, the Arts and Industries building, the Freer Gallery of Art, the National Air and Space building, the Fine Arts and Portrait Galleries building, and the Renwick Gallery of Art. It is also responsible for serving nine other research, collection, and service facilities, including the Oceanographic Sorting Center and the Silver Hill Facility which provides for the restoration, preservation, and storage of air and space objects and houses reference collections of objects of science, technology, art, and natural history.

A program increase of 20 positions and \$327,000 are required in fiscal year 1971 to provide basic services to the Renwick Gallery of Art; to meet increased costs of utility, communications, fire, security, and detection systems; and to repair and maintain elevators and escalators. An additional \$126,000 are requested for necessary pay increases.

Need for Increase--The increases requested are required for the operation, maintenance, and protection of 3,300,000 square feet of exhibition and public areas, special laboratories, reference collection areas, libraries, offices, and supporting facilities located at 17 different sites in the Washington area.

The operations of the Buildings Management Department are carefully geared to meet the extraordinary uses which the buildings serve. The Smithsonian museums and galleries accommodate as many as 13 million visitors, researchers, and students annually; serve both as national depositories and as exhibition facilities for objects of great historical, scientific, and artistic value; and provide the necessary laboratories, workrooms, curatorial, administrative, and support spaces for the programs and activities of the Institution. The services of this Department are required during regular work and visiting hours, and for special events, public service, and educational programs during evenings, weekends, and holidays.

This Department must supplement its staff and program support funds to meet the increasing demand for services. The increases requested are related to the acquisition by the Smithsonian of authorized additional renovated building spaces and exhibition halls during fiscal years 1969 and 1970; to added costs of utilities and communications; to the escalation of materials and labor costs in the repair and maintenance of the elevators and escalators; and to the installation and maintenance of security and fire detection systems.

The Renwick Gallery of Art, located at 17th Street and Pennsylvania Avenue, was turned over to the Smithsonian by the contractor in February 1969, although essential restoration and renovation work remained to be done in fiscal years 1970 and 1971. The Buildings Management Department is required to give initial basic services to safeguard the building and its contents, including guard protection, custodial and laboring services, and mechanical maintenance to the heating, air conditioning, and humidity control systems in the building, on a 24-hour basis, seven days a week. This Gallery will be undergoing museum development work beginning late in fiscal year 1970, and is scheduled for opening to the public in fiscal year 1971. A small staff of five guards, one laborer, and one operating engineer is now deployed from other Institution buildings in order to provide initial support services before development work begins. The additional positions required to provide an adequate staffing level during fiscal year 1971 are

12 guards, five operating engineers, and three mechanics (electrician, painter, and carpenter). Funds are also requested for related expenses such as utilities, communications, the installation of some security and fire detection systems, custodial supplies and materials, and equipment items. This is a requested increase of \$180,000 for the building operation costs of this new museum activity.

Additional air conditioning, heating, lighting, and communications systems for all the Smithsonian buildings as well as increasing numbers of visitors and exhibit spaces, and expanding educational, research, and cultural programs, have resulted in a higher consumption of utilities and communications as indicated in the following table. Increased unit costs for the utilities are reflected along with an upward trend in consumption.

Type of Expense	1968	1969	1970 Est.	1971 Est.
Electricity	\$534,000	\$595,000	\$640,000	\$705,000
Steam	299,000	322,000	373,000	416,000
Communications	209,000	235,000	265,000	285,000
Gas	<u>20,000</u>	<u>31,000</u>	<u>40,000</u>	<u>40,000</u>
Total	\$1,062,000	\$1,183,000	\$1,318,000	\$1,446,000

Smithsonian buildings and operations are not normal office-type activities. Air conditioning, heating, and lighting must be provided for visitors, during day and evening hours. Continuous operations of environmental control equipment are required to protect the objects in the collections from damage by changes in temperature and humidity. Greater public interest in the Smithsonian has increased communications costs.

An increase of \$147,000 is required to meet the following forecasted additional utility and related costs.

--\$65,000 for the cost of electricity required for the phased development of public exhibit and collection spaces in the Fine Arts and Portrait Galleries building; an additional 20,000 square feet of space in the Smithsonian building; and for full operating costs of the 500-ton capacity air conditioning equipment installed in the Smithsonian Institution building as part of the restoration and renovation program which will be completed in fiscal year 1971.

--\$43,000 to fund the cost of steam which has risen approximately 10 percent per thousand pounds over the past year.

--\$20,000 to meet the increasing costs for communications. Of this amount, \$18,740 are needed for the Federal Telecommunications System intercity telephone services as projected by the General Services Administration.

--\$19,000 for contract services for the installation and maintenance of security and fire detection systems, and for the repair and maintenance of approximately 50 elevators and escalators. This estimate is based on known higher labor and material costs.

Background on Workload in the Buildings Management Department

The Buildings Management Department provides utilities (water, gas, steam, electricity, and compressed air) to the Smithsonian's buildings and facilities. It services, repairs, and operates a wide variety of mechanical and

and electrical systems including: refrigeration, heating, temperature, humidity control, elevator and escalator, fire and smoke detection, and security devices. It furnishes communications, transportation, custodial, and checkroom services and is responsible for the protection and physical security of the buildings, exhibits, and collections of the Institution and for the safety of visitors and employees. The Department performs repairs, improvements, and alterations to the buildings and facilities. Engineering and construction services for Smithsonian projects, and the supervision of contract construction work, are part of the Department's responsibility. On specific building projects, the Department coordinates work performed by architects and engineers, handles contract supervision, and acts as liaison with contractors, the General Services Administration, and the Smithsonian staff. On a work order request basis, the Department also provides special custodial, protection, and fabrication services in support of the Institution's research, exhibition, and education programs and the care of the National Collections.

The number of work orders requesting the assistance and support of skilled mechanics and craftsmen and for special custodial services continue to increase as indicated below, placing heavy demands on the Department's manpower resources. In fiscal year 1969, the number of work orders increased by 25 percent over fiscal year 1968.

<u>Fiscal Year</u>	<u>Number of Work Orders</u>
1968	6,470
1969	8,180
1970	9,500 est.
1971	10,500 est.

These requests covered such needs as: improving space for exhibit, office, and laboratory purposes; installing special lighting in exhibit halls; extensive interior and exterior building repairs and modification including the repair or replacement of roofs, gutters, and flashings on all Smithsonian buildings to prevent damage or further deterioration; renovating and restoring antique furniture for exhibition purposes or use; and the design and fabrication of special scientific equipment, not obtainable on the open market, for research purposes. This equipment is used in such fields as anthropology, sedimentology, underwater archeology, and mineral sciences.

In addition to the regular duties of custodial service employees, which include cleaning restrooms, public lounges, offices, workrooms, laboratories, and exhibition areas, these employees provide many special requested services in connection with public service and educational programs during regular hours and on weekends and holidays. These employees are also responsible for office moves, transporting museum objects, operating elevators, and pest-control measures.

The Department provides physical security for the Smithsonian's museum and art gallery buildings, for the National Collections housed therein, and is responsible for the safety of all personnel, including general public visitors, staff, and visiting students and researchers.

Minimum acceptable security standards require specialized techniques and extensive installations to assure protection against fire, theft, and vandalism. An increasing burden is being put on the Smithsonian for the maintenance of adequate protective standards. New design concepts in exhibit halls and galleries result in a minimum amount of large open space which can be effectively protected by a single guard. In addition, many new exhibits are being presented in a fashion that prevents the use of protective devices such as barriers, cases, and enclosures which might intrude between the objects and the viewer. These

innovations, while desirable for public enjoyment and education, result in an ever-growing requirement for alert guards, each with a lesser area for proper surveillance. The increased use of sophisticated electronic protection devices only partially compensates for the absence of an onsite guard. In case of trouble or emergency, the response and action of a trained guard are still required.

In spite of rising crime rates across the nation, there was an actual decrease in the number of occurrences of theft, pilferage, and vandalism at the Smithsonian. The statistics covering such incidents show that the number decreased by about 14 percent from 240 in fiscal year to 211 in fiscal year 1969. This reversal of the former upward trend can be attributed to closer supervision at all levels, a continuing examination and improvement of security procedures, a more comprehensive and concentrated training program, and the increased use of electronic protection devices and communication equipment wherever practicable. The recent general upgrading of nonsupervisory guard positions undoubtedly contributed to this improved condition since it enhances recruiting and aided in the retention of better qualified guards.

In recognition of the need to insure that the operations of the Buildings Management Department are performed effectively in the most economical manner, a preliminary study by a reputable management consultant firm has been made of the organizational structure, financial management, and work control systems of this Department. The recommendations in this preliminary study are under review at the present time.

<u>Object Class</u>	<u>1970 Base</u>	<u>Increase Requested</u>	<u>1971 Estimate</u>
Number of Permanent Positions	<u>857</u>	<u>20</u>	<u>877</u>
11 Personnel Compensation.....	\$ 5,578,000	\$ 233,000	\$ 5,811,000
12 Personnel Benefits.....	434,000	18,000	452,000
21 Travel & Transp. of Persons ..	2,000	0	2,000
22 Transportation of Things	1,000	0	1,000
23 Rent, Comm. and Utilities.....	1,355,000	163,000	1,518,000
24 Printing and Reproduction	2,000	0	2,000
25 Other Services	675,000	23,000	698,000
26 Supplies and Materials	275,000	10,000	285,000
31 Equipment	<u>100,000</u>	<u>6,000</u>	<u>106,000</u>
TOTAL.....	\$ 8,422,000	\$ 453,000	\$ 8,875,000
<u>Analysis of Total</u>			
Pay Increases	\$324,000	\$126,000	\$450,000
Program.....	\$8,098,000	\$327,000	\$8,425,000

DEVELOPMENT OF EXPERIMENTAL EXHIBITS FOR MUSEUM EDUCATION

Senator BIBLE. For the Office of Director General of Museums you propose an increase of three positions and \$75,000 in addition to the pay cost increase. What do you expect to accomplish with these additional funds?

Dr. RIPLEY. Two of these positions and \$48,000, Mr. Chairman, will be for an experimental psychologist and an experimental exhibit specialist to plan and evaluate exhibition techniques. This staff will require funds for travel, other services, supplies and equipment to install test devices.

Now the reason for this request is that we have come to the conviction that although museums teach people about real things and arrange objects and happenings in perspective and can and do stimulate the viewer's interest and his desire to learn more about a specific subject, we believe we can do a far better job, perhaps proportionately as much as 50 percent better, by supplementing and reinforcing present formal education at all academic levels by developing testing devices and getting visitor reactions to new exhibit techniques. As you know, Mr. Chairman, presently every one in the country is deplored the relative deficiencies of present formal education especially at the levels of elementary and secondary education.

I would like to underscore what I believe to be the importance of this exhibits techniques research which is not effectively being carried out under the present mandate to educational institutions, and which I feel is one of the most significant resources that museums can provide to education.

MUSEUM TRAINING OPPORTUNITIES

Now, in addition, we are requesting one position and \$32,000 for museum training. At the present time we receive about 1,000 requests a year from other museums and national and international associations to provide training for museum personnel in conservation, exhibition, and other museum practices. Although we can provide some advice and informal on-the-job training, 500 persons visited the Smithsonian for these purposes last year, we cannot meet the growing requirements in any adequate way with present funding. So we ask for a program assistant and \$26,000 for cooperative training grants and museum surveys and studies.

This is under our National Museum Act which, as you know, Mr. Chairman, has been authorized and is presently up for reauthorization, but has not been funded at this time except out of general Smithsonian funds.

Senator BIBLE. What is the total amount in your budget for this area?

Dr. RIPLEY. The total amount for the Office of Director General of Museums is \$240,000, and seven positions for the 1970 base.

Senator BIBLE. Do you have money available in this current year for museum training?

Dr. RIPLEY. Yes, I believe we had a small amount available. We estimate \$25,000 for fiscal year 1970 for training of museum personnel.

Senator BIBLE. That would be how much in 1971?

Dr. RIPLEY. We are requesting an addition to that to make a total of \$51,000.

Senator BIBLE. An increase of \$51,000?

Dr. RIPLEY. No, sir; an increase of \$32,000.

Senator BIBLE. Thank you.

SPECIAL RESEARCH PROJECTS FOR THE NATIONAL MUSEUM OF NATURAL HISTORY

With respect to the special projects portion of the increase asked for the National Museum of Natural History, you have proposed an archeological investigation by your Smithsonian personnel.

Dr. RIPLEY. Yes, sir. We have requested under special projects in archeology, biology, and marine sciences two positions and \$95,000. Out of all the projects and all the possibilities for research we have identified a very minimum number as being particularly important because of their scientific merit and reference to current national problems. We would like to undertake an archeological and ecological exploration of the Seistan area in Afghanistan which we feel is very important because it will contribute to our knowledge of how a society is affected by a drastic change in its environment. This is a relatively new desert area which has suffered highly significant population declines rather like the history of the Dust Bowl area, but in considerable magnification. We feel that it would be highly useful for comparative purposes, in terms of environmental change, to make a study here and find out exactly how long it has taken to sustain and develop the effective pollution of the water supplies, the decrease of these water supplies, and the creation of a new desert area where formerly there was advanced agricultural technology.

A study of invertebrate organisms in Panama could be done with the assistance of our Tropical Research Institute of the Smithsonian, which would provide us with an opportunity to study closely related organisms inhabiting adjacent but distinctive areas.

The third study, one of sea-floor spreading and deep-sea rocks, is of great importance to measuring the earth, and rates of change and shiftings of the continents. It will provide an insight into the whole matter of crustal movements. Here is an example of related research through the Astrophysical Observatory's geodesy program and our Natural History Museum's deep-sea studies, which can provide correlated information of great importance to studies of continental drift.

FOREIGN CURRENCY FUNDS NOT AVAILABLE

Senator BIBLE. How does this type of operation differ from your Special Foreign Currency Program? It seems to me like you do a lot of this under that program.

Dr. RIPLEY. This differs in one sense in that these scientists are all in the Smithsonian now and know the potential for conducting unique services and research. Also, the countries involved are not ones in which excess foreign currency funds exist.

Senator BIBLE. This goes into the areas that do not have the foreign currency program?

Dr. RIPLEY. That is right, sir.

Senator BIBLE. Very well.

RARE AND ENDANGERED SPECIES

You have a responsibility in the Rare and Endangered Species Act of 1969, do you not?

Dr. RIPLEY. We do. I don't believe that we have any fiscal responsibility.

Senator BIBLE. Do you have any money in your budget for fiscal year 1971?

Dr. RIPLEY. No, sir. We volunteer a considerable amount of information constantly. I am president of one of the constituent international organizations, I maintain personally a file of endangered species of birds and mammals around the world, and I am in collaboration and correspondence with about 250 individuals in 62 countries.

Senator BIBLE. Very well.

Dr. RIPLEY. I do that out of my hip pocket.

Senator BIBLE. That keeps you busy.

SPACE ARTIFACTS PROGRAM

For the National Air and Space Museum you propose an increase of four positions and \$50,000 in program funds for fiscal year 1971. How much do you devote to the space artifacts program during the current year?

Dr. RIPLEY. Well, Mr. Chairman, this program was started—

Senator BIBLE. No; don't describe the programs. We can read the program justifications. You just answer the questions.

Dr. RIPLEY. I am talking about dollars.

Senator BIBLE. Yes, that is right.

Dr. RIPLEY. I started by saying that this was funded from NASA with a contract which ended in June 1969. The Federal funds expended by the Smithsonian were \$100,000, making a total in fiscal year 1969 of \$155,400. Our estimate for fiscal year 1970 is down to \$115,000.

Senator BIBLE. How many positions are assigned to that program now?

Dr. RIPLEY. Four positions.

Senator BIBLE. In 1971 it will be what?

Dr. RIPLEY. We are requesting an increase of four positions, but a funding increase of \$50,000, for a total of \$165,000.

NATIONAL ZOOLOGICAL PARK

Senator BIBLE. Very well. For the operation of the National Zoological Park in fiscal year 1971 you have a budget of \$3,125,000, which includes a \$131,000 pay increase and \$180,000 to increase the present program of operations.

Have you actually taken over the operations of the zoo now, or does this become effective on July 1?

Dr. RIPLEY. Well, I would like to ask Dr. Reed to answer this question, if I may, as he is, in effect, the Administrator of the zoo.

Senator BIBLE. Yes, Dr. Reed.

Dr. REED. The actual administration of the zoo has always been under the Secretary of the Smithsonian and the Board of Regents. However, the funding of the zoo is derived from the District of Columbia appropriation. As of this July 1, it is anticipated that we will be included in the budget of the Smithsonian Institution. Fiscally, we will be responsible to the Smithsonian.

Senator BIBLE. Was the program increase of \$180,000 which you propose determined upon before or after it was decided that you would operate the National Zoological Park?

Dr. REED. The program in this budget was prepared originally for the District budget, so it was before.

NEED FOR PLANNING AND DESIGN UNIT

Senator BIBLE. So it is the same. It is indicated that a part of the requested increase will provide three positions and \$28,000 in the Office of the Zoo Director for the establishment of a planning and design unit.

Specifically, what construction projects have you in mind for this organization?

Dr. REED. About 5 years ago we started on a remodeling, reconstruction, renovating, and modernization program of the entire zoo. This unit that we are now asking for is for the development programs for the reconstruction of the remaining parts of the zoo. Specifically, we would be, in future years, in the phase program redesigning of the areas for the lions, for the bears, for the giraffes. About 50 percent of the zoo has to be remodeled in our program that is already under progress.

Senator BIBLE. Who has done the planning and designing heretofore?

Dr. REED. We had this under contract to private architects. This was done through the General Services Administration. We need this architectural planning unit to develop programs that can be supplied to the design architects.

The construction of zoo facilities is so unique that there is no book, there is no class work, nor any other source of information where a man can turn to learn what a lion needs in the way of so many square feet. It is not like building an office building or school, where it has been done time and time again, so we need to develop the programs for the contract architect. This is why we need such a unit. It can develop this information and provide it to contract architects through the GSA, of course.

Senator BIBLE. Thank you.

STATUS OF HOSPITAL RESEARCH BUILDING

Is your hospital research building complete?

Dr. REED. The building itself is complete, sir, but the furnishings and equipment have not yet been installed; that is, the laboratory equipment, sinks, research rooms, and so forth. This is in the process of being done. It is occupied by three people at the present time. Their offices are complete.

Senator BIBLE. When will it be fully operational?

Dr. REED. I have hopes that everything will be installed within the next 3 months, and it will be fully operational by the end of this fiscal year.

Senator BIBLE. How many personnel are on the staff assigned to the hospital?

Dr. REED. There are five in the medical unit who are assigned to the hospital, and three in the pathological unit.

Senator BIBLE. One of your subactivities is the animal health department?

Dr. REED. That is right.

Senator BIBLE. Is that the same as the hospital research activity?

Dr. REED. This is part of the hospital research activity. We have two activities there—the main one being, of course, the animal hospital—the veterinary health program and the pathologist. This is strictly concerned with the animal health program, servicing the animals in the collection and sending this information out to all other zoos in the country, as a service organization. The other part is our research into animal behavior, animal nutrition, and the field observation of animals, based again on serving the animals in the collection and also disseminating this knowledge to other zoos and institutions in the country.

TERMATREX SYSTEM

Senator BIBLE. What is the Termatrex system?

Dr. REED. The Termatrex system is a means of reporting veterinary information and pathology information, and also retrieving this information. It is a very simplified form of data retrieval system that we can use in our particular setup. It is primarily for the retrieval, and also the storage, of information derived from the treatment of animals and post mortems.

NATIONAL ZOOLOGICAL PARK VISITORS

Senator BIBLE. How many visitors did you tell me you had at the zoo in the last year?

Dr. REED. Right at the present moment, I have to admit we are in a little difficulty on this because we have several methods of estimating, but we do not have an actual head count at the zoo. It would be very expensive to count everybody at the zoo.

Senator BIBLE. How many do you estimate?

Dr. REED. We estimate between 2½ to 5 million, depending on which system of estimation we use. We hope to have within a year a more reliable method of visitor estimation.

Senator BIBLE. What is the largest zoo in the world for visitation?

Dr. REED. Tokyo.

Senator BIBLE. How many visitors does it have?

Dr. REED. They are estimating well over 6 to 7 million visitors a year—but, remember, that is a pretty large city they have there.

Senator BIBLE. I recognize it is the largest city in the world now, or close to it.

Dr. REED. I think it is close to it.

Dr. RIPLEY. They pack in closer, too.

Senator BIBLE. What is that?

Dr. RIPLEY. They pack in closer, too.

Senator BIBLE. I am sure they go up higher, too.

ANIMAL POPULATION

What is the total animal population at the zoo?

Dr. REED. The total animal population fluctuates at the zoo. At the present time, it is about 2,850, but it varies between that and 3,000. We usually maintain between 800 and a thousand different kinds of animals.

Senator BIBLE. What about birds?

Dr. REED. They are included in that.

Senator BIBLE. Reptiles as well?

Dr. REED. Yes.

Senator BIBLE. That is the total population.

Dr. REED. That is the total population. I have the statistics here, if you wish, on the breakdown.

Senator BIBLE. No; it can be supplied for the record.

In our annual report for 1969, we have a total of 852 species and 2,835 individuals. This includes mammals, birds, reptiles, a few insects and fish, and mollusks. This represents 52 orders and 192 families of the animal kingdom. We exhibit 196 species of mammals, 702 individuals. We have 428 species of birds, 1,373 individuals; 155 species of reptiles and amphibians, and 547 individuals.

The National Zoo is striving to achieve a broad and diversified collection of animals for the education and enjoyment of the visiting public.

COMPARISON WITH OTHER ZOOS

Senator BIBLE. I was trying to get an idea. How does that compare with other American zoos as far as population of animals, and birds and reptiles, and whatever else you have in there?

Dr. REED. Well, we are within the first five zoos in this Nation in the population of animals. I have the exact figures here but, generally speaking, one zoo will have more birds or more hoof stock, so it will vary from place to place. But, totally, we are within the top five.

Senator BIBLE. What are the five leading zoos in the United States?

Dr. REED. New York, Washington, Chicago-Brookfield, San Diego, and either Detroit or St. Louis. Milwaukee is coming up fast.

Senator BIBLE. Where does San Francisco rate?

Dr. REED. It is very difficult to rate these zoos.

Senator BIBLE. I mean in total population. I don't know how you rate a zoo, anyway. I am just thinking by way of comparison. That is the purpose of my question.

Dr. REED. It would be one of the important zoos of the country, but not one of the top six.

Senator BIBLE. It is not in the top six.

Dr. REED. No.

SUBCOMMITTEE RECESS

Senator BIBLE. I don't think I need to develop that any further.

We are going to take our customary morning recess. We will be in recess until 2:30 p.m. this afternoon.

(Whereupon, at 11:35 a.m., the subcommittee was recessed, to reconvene at 2:30 p.m.

(AFTERNOON SESSION, 2:30 O'CLOCK, MONDAY, MARCH 16, 1970)

Present: Senator Bible.

SMITHSONIAN INSTITUTION

STATEMENT OF S. DILLON RIPLEY, SECRETARY—Resumed

ANACOSTIA NEIGHBORHOOD MUSEUM

Senator BIBLE. For the Anacostia Neighborhood Museum, you propose an increase of \$75,000 in the program, plus \$2,000 to meet pay increase costs, to provide you a total of \$159,000 in the coming fiscal year. When was the Museum established?

Dr. RIPLEY. The Museum was opened in September 1967, Mr. Chairman.

PERSONNEL AND FUNDING

Senator BIBLE. What has been provided by way of personnel and funds for each of the years since its establishment? That can be supplied for the record.

Dr. RIPLEY. All right, sir.

(The information follows:)

PERSONNEL AND FUNDS

	1968		1969		1970	
	Positions	Dollars	Positions	Dollars	Positions	Dollars
"Salaries and expenses:"						
Direct appropriation ¹ -----	1	\$6,000	4	\$25,000	8	\$69,000
Building Management Department support ² -----				17,000		13,000
Total-----	1	6,000	4	42,000	8	82,000

¹ Including pay supplements.

² Funds for maintenance and operations services that would be provided if the museum was located closer to the Mall.

ADDITIONAL FUNDING REQUIREMENTS

Senator BIBLE. In fiscal year 1970, Congress provided \$65,000 for operation of the Anacostia Neighborhood Museum. I note that this year's budget presentation indicates that, in fiscal year 1970, \$78,000 is available. This is exclusive of the expected pay increase. Where does the additional \$13,000 come from?

Dr. RIPLEY. I would like to ask Mr. Bradley to supply the figures on this, if I may.

Senator BIBLE. Certainly.

Mr. BRADLEY. Senator, the funds that were put into this account to increase the Anacostia allotment were taken in part from the Buildings Management Department, which normally services for building maintenance and operations purposes the various units of the Institution.

In the case of Anacostia, because of its location and isolation from the Mall, it was considered to be better to put the funds right with the unit.

Senator BIBLE. Very well. How much of the \$45,000 requested for space rental and custodial, exhibit, and workshop supplies and equipment is for space rentals?

Mr. BRADLEY. \$20,000, Mr. Chairman.

Senator BIBLE. Where is it located now?

Mr. BRADLEY. The Museum, which was an abandoned movie theater, is located in Southeast Washington on Nichols Avenue.

DECLINE OF PRIVATE SUPPORT FOR GENERAL OPERATIONS

Senator BIBLE. Is it the intent to leave the Museum in its present headquarters?

Dr. RIPLEY. Yes, sir. We would like to do so and we would like to continue to develop it in the present manner as long as we can. We have, as you know, Mr. Chairman, supported this institution largely from private funds received by foundations in the past years, but late in 1969 those general support funds which totaled 11 grants, close to \$100,000, stopped altogether. Since that time we have had another five grants totaling over \$100,000 but they are all for specific projects rather than the general operational type of grants the earlier group had provided. These grants don't help our personnel or general operating costs. They are for special purposes, of course. They enhance the services of the Museum to the community but they do place a kind of burden on the existing staff.

Senator BIBLE. Very well.

INSTRUCTOR STAFF AT MUSEUM

Now, how many instructors do you have at the Museum? Your answer to the question is you plan on keeping the Museum at the present force, is that correct?

Dr. RIPLEY. We have a total of eight staff and are requesting four.

Senator BIBLE. And two of those are full-time instructors?

Dr. RIPLEY. Yes.

Senator BIBLE. What is the qualification for an instructor?

Dr. RIPLEY. The qualifications are that they have teaching experience in the local school system and that they are prepared to act as day-to-day class instructors to both children and adults that come in and wish to learn on the basis of the materials in the Museum.

RENWICK GALLERY

Senator BIBLE. You indicate that construction on the Renwick Gallery will proceed with the funds now available to a point that the gallery can be opened to the public about December 1970. How much

of the National Collection of Fine Arts appropriations in fiscal year 1970 will be available for providing necessary furnishings and exhibits?

Dr. RIPLEY. I would like to ask either Mr. Bradley or Mr. Blitzer to give the figures on that.

Mr. BRADLEY. Mr. Chairman, included in the 1971 request is \$79,000 for the purchase of collections and exhibit equipment.

Senator BIBLE. Is that in fiscal year 1971?

Mr. BRADLEY. 1971; yes, sir.

Senator BIBLE. How much of the 1970 appropriation is going to be available for necessary furnishings of exhibits, if any?

Mr. BRADLEY. There is staff time only in 1970, so the answer is, no money for equipment and furnishings.

Senator BIBLE. During the current year and then from July 1 until you open in December 1970, that is 5 months, do you have sufficient funds appropriated to permit you to provide the furnishings and the exhibits that go with the opening? *This means enough furnishings to open the museum, not everything that will be needed.*

Mr. BRADLEY. That go with the opening, precisely, Mr. Chairman.

Senator BIBLE. Very well.

Dr. RIPLEY. Part of this is privately funded; that is, we received at least one grant from a foundation and we are actively soliciting more and plan to raise funds in the private sector to complete the furnishing.

HIRSHHORN MUSEUM OPERATIONS

Senator BIBLE. Very well. I think you have already testified about the Hirshhorn Museum in detail.

How many of the Hirshhorn Museum staff are now engaged in restoration?

Dr. RIPLEY. Mr. Blitzer, do you have the answer to that?

Mr. BLITZER. I believe that all the restoration work is being contracted out.

Senator BIBLE. How much staff do you have in the Hirshhorn Museum?

Mr. BLITZER. Thirteen people.

Senator BIBLE. What is their responsibility? Are they entirely administrative?

Mr. BLITZER. No, several of them are doing research about the collection, trying to find out what there is and where it is and document everything. A lot of the collection was bought rather rapidly in a short period and piled up in a warehouse and it now has to be sorted out.

MARINE RESEARCH AT THE SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Senator BIBLE. For the Smithsonian Tropical Research Institute you propose an increase of \$100,000, and you also ask for an additional five positions. Two of these positions are for comparative marine research. How many personnel do you have doing this work at this time?

Dr. RIPLEY. Dr. Galler would agree with me, I think, that we have a general director of this, Dr. Rubinoff, and one assistant at the present time. So in effect we are anxious to double our basic strength in personnel.

Senator BIBLE. One of the positions which you ask for is a contract specialist. Who has been doing the contract work in the Canal Zone in the past?

Dr. RIPLEY. Sir, this has had to be shared between Washington and to a slight extent recently Mr. Kohn, who has gone down there to be the administrator from our office here. It has been an operation at long distance and is quite difficult. It would be very much better for the functioning and the relationship with scientists on the spot if we could have a contract specialist on the spot.

STATUS OF THE RADIATION BIOLOGY LABORATORY

Senator BIBLE. You ask an increase of \$200,000 for the Radiation Biology Laboratory. Has the move from the District of Columbia to Rockville been fully completed?

Dr. RIPLEY. It has in the sense that the people are out and the equipment has been moved in but the Laboratory is not yet ready to open for full work. I think that the date on its opening is to be in midsummer.

Senator BIBLE. Midsummer 1970?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. How much space did you have in Washington for this Laboratory?

Dr. RIPLEY. About 30,000 square feet, essentially in basement areas in the old Smithsonian building.

Senator BIBLE. How much will you have in the new building?

Dr. RIPLEY. The new space is about 50,000 square feet, sir.

Senator BIBLE. So you are obtaining 20,000 more additional square feet?

Dr. RIPLEY. Yes.

Senator BIBLE. Plus more desirable space?

Dr. RIPLEY. Plus, of course, effective space. The other space had become intolerable for the staff.

Senator BIBLE. I observe that the Smithsonian Institution will have to pay the General Services Administration an administrative charge as part of the operating cost of the building. You say that this charge has yet to be determined. Do you have an idea of how much it will be?

Dr. RIPLEY. \$3,000.

Senator BIBLE. Will that be an annual charge?

Dr. RIPLEY. Yes, it will be.

Senator BIBLE. I note that you are adding a library technician. Did you have such a position when you were in Washington, D.C.?

Dr. RIPLEY. No, sir; we did not. This is a very important aspect of the work there. The need for developing a very fast and flexible library service of course becomes apparent in Rockville. It is already a difficulty even in a place as close as the Mall to make sure that you get your library needs serviced but when you move out to Rockville it is really implicit that you must have an efficient library service facility and that is why we need this kind of liaison.

FUTURE APPROPRIATIONS FOR THE LABORATORY

Senator BIBLE. You indicate that the appropriation for this Laboratory will increase in the future years. What will be the rate of increase?

Dr. RIPLEY. It will be a gradual one due to the necessity for replacement of equipment. As the present equipment matures and becomes obsolete we will have to replace it. We are already using much of the material which has been purchased over the last 7 to 9 years and as with all material of this kind it simply deteriorates and becomes unusable eventually.

CHESAPEAKE BAY CENTER

Senator BIBLE. Is the Chesapeake Bay Center for Field Biology which appears in your last year's budget and the Chesapeake Bay Center for Environmental Sciences that shows in this year's budget the same?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. Does the Center for Environmental Sciences have a different mission than the Center for Field Biology?

Dr. RIPLEY. The Chesapeake Bay Center for Environmental Sciences is part and parcel of the Chesapeake Bay Center, the same thing, but it is now listed as being under the Office of Ecology. I am not sure that it was so listed last year although I believe it was.

Dr. GALLER. Yes.

Dr. RIPLEY. I am not quite sure about the question, Mr. Chairman.

Senator BIBLE. Well, you called it one thing last year and something different this year.

Dr. RIPLEY. I see.

Senator BIBLE. They are the same thing?

Dr. RIPLEY. They are the same thing; yes, sir.

Senator BIBLE. Do they have the same mission?

Dr. RIPLEY. They have the same mission.

Senator BIBLE. All right.

STUDY OF THE CHESAPEAKE BAY WATERSHED

In fiscal year 1971 you ask for two positions and \$49,000 for a study in the Chesapeake Bay area watershed. Last year your request was for one position and \$35,000 to accomplish somewhat the same purpose. Last year's increase was denied. What is the difference between the two budgets which causes you to ask for the larger increase in fiscal year 1971?

Dr. RIPLEY. Would you like to speak to that, Dr. Galler?

Senator BIBLE. You were denied the smaller amount and now you ask for the larger amount, hoping you get the smaller. Is that your rationale?

Dr. GALLER. Not quite, Mr. Chairman.

Senator BIBLE. All right. You explain it.

Dr. GALLER. The program itself is undergoing a change, Mr. Chairman, by virtue of a series of meetings that have been convened among scientists concerned with studying the ecology of the Chesapeake Bay and, as a consequence of these meetings, it becomes apparent that the view we originally held about the scientific requirements for studying the Bay was relatively narrow. Now the principal difference between last year and this year is that we want to bring in a person who is not only a competent ecologist but also who can translate some of the

fundamental knowledge to be gained into a format that can be used in community planning in the areas adjacent to the Chesapeake Bay.

Senator BIBLE. Very well.

INADEQUATE SECURITY AT THE BAY CENTER

How many security personnel do you now have at the Chesapeake Bay Center?

Dr. GALLER. We have one person on board right now, Mr. Chairman.

Senator BIBLE. How many would you have? You answered the question as if you anticipated an increase.

Dr. GALLER. It has become apparent during the years of the operation of the Chesapeake Bay Center, Mr. Chairman, that our security has been quite inadequate to cope with the poachers and the unauthorized entries both from the shoreline and from the land area, and that is why we are asking for one additional position for security.

Senator BIBLE. Very well.

On page B-33 you list a number of research projects being carried on in the Chesapeake Bay Center, and many of them are matters of concern to other Federal agencies. How is the work of the Smithsonian Institution and other Federal agencies coordinated?

Dr. GALLER. Mr. Chairman, in most cases the Smithsonian and other agencies work hand-in-glove. The Smithsonian Institution is concerned with the acquisition of fundamental information through basic science. Most of the other agencies are mission-oriented agencies which require solutions that depend on knowledge gained from our fundamental research projects. So we work very closely with the Department of the Interior, with the Atomic Energy Commission, and with a number of other agencies and in some cases they come to us with questions and we are able to provide answers from knowledge already gained or in many cases we have to undertake the studies to come up with the basic knowledge that they need.

BACKLOG OF SORTING MARINE BIOLOGICAL SPECIMENS

Senator BIBLE. For your Office of Oceanography and Limnology you ask an increase of \$150,000 to permit the employment of eight additional persons. Supply for the record a justification for that increase.

(The information follows:)

SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

The Sorting Center processes marine samples for use by more than 300 scientists in 27 countries in their research projects ranging from taxonomic studies to pollution control. In the past year, the Center sorted 3,500,000 specimens for 289 researchers, 55 of whom were in federal agencies. In addition, the Center provides advice and assistance on specimen-related activities such as field collection and the disposition of sorted samples in repositories. The Center has made concerted efforts to improve its productivity and efficiency. However, the increased number of samples sent to the Center (some 10,000 a year, each with the potential of many thousands of specimens), coupled with an increased demand for specimens, has created a large backlog of unsorted material. Unless these samples are processed soon, many of them will deteriorate to the point of uselessness for research purposes. To raise the capacity of the Center to the point where it can meet the demand for specimens, the Center requires seven sorter-

technicians and a chemist (\$63,000), funds for travel (\$5,000), utilities (\$2,000), supplies, materials, and equipment (\$40,000), and other services \$(40,000), for a total of \$150,000.

CENTER FOR THE STUDY OF MAN

Senator BIBLE. Last year you advised that in fiscal year 1969 the Center for the Study of Man was established with no personnel and no funds. In fiscal year 1970 you requested one position and \$20,000. This was granted by Congress. The present budget indicates two positions and \$111,000. Where did the extra position and the additional \$91,000 come from?

Dr. RIPLEY. These funds, Mr. Chairman, that represent the increment to what was shown in the 1969 budget were obligated by the National Museum of Natural History for work which is now considered to be the responsibility of the Center for the Study of Man. Recognizing this change of responsibility for traditional and authorized anthropology work we have shown base funds made available from the National Museum of Natural History. That explains the difference. The Center continues to work closely with the Museum of Natural History as before.

HANDBOOK OF NORTH AMERICAN INDIANS

Senator BIBLE. What progress have you made on the "Handbook of North American Indians"?

Dr. RIPLEY. Sir, we have spent the last 2 years largely in attempting to document by conversations with scientists exactly the scale that the handbook revision program should assume. We have organized a modest American Indian program. The purpose of this program is to facilitate the widest possible communications network between all the people who will be concerned with the production of the handbook. It is quite obvious that this has got to be a nationwide, indeed, an international project because it includes Indians of Mexico and it must involve some people abroad who might be the only known or principal specialists in certain parts of the area. This program included American Indians, anthropologists, historians, educators, and specialists in research in anthropology. We have been carrying on considerable correspondence with these people and one of the functions of the program has been the distribution of difficult-to-acquire research material to Indians, to educators, and to the general public. The Center has cooperated with Congressional committees seeking assistance on American Indian matters. For instance, I can point out here the work done under the Joint Economic Committee of the Congress by the two members of the Center who are listed on our payroll at the present time: Dr. Tax and Dr. Stanley, who represent the new persons in the 1970 base.

FUNDS FOR PRODUCTION OF THE HANDBOOK

This work is finally pushing the Center into a position where it is ready now to assemble the staff of technical personnel to assist in the many editing tasks associated with the book. We feel that this staff is absolutely necessary to any further progress in this project.

Senator BIBLE. How many total dollars are available for this purpose in fiscal year 1971?

Dr. RIPLEY. I think that the amount is \$45,000 that we are requesting. In other words, we have no money at this point for actual preparation. We have requested \$45,000, sir. In other words, we don't have the funds for developing this aspect, that is the real work on the project. I think that the handbook will go to 15 volumes. It will be a long 10 to 12 years before we can get it finished.

Senator BIBLE. At an average level of funding of approximately how much?

Dr. RIPLEY. I should not think it would be over the level that we anticipate for this coming year.

Senator BIBLE. That is \$45,000?

Dr. RIPLEY. Yes.

URGENT ANTHROPOLOGY SMALL GRANTS

Senator BIBLE. Is the urgent anthropology small grants program for which you ask \$5,000 a new one?

Dr. RIPLEY. No, sir; it is not. It is an outgrowth of the kinds of research that the anthropologists try to do on their own by the aid of a grant or donation. For example, we may get a small foundation grant of \$2,000 and then distribute it in very, very small amounts and pieces and in this way get on-the-spot assessment of situations, taking advantage of the presence of the anthropologist in some remote area or some place where he can add to his sum of information.

Senator BIBLE. How much did you ask for that program in fiscal year 1970?

Dr. RIPLEY. We asked for nothing for this activity because whatever we did was based on our grant fund.

Senator BIBLE. In fiscal year 1971?

Dr. RIPLEY. In fiscal year 1971 we are asking for \$5,000.

Senator BIBLE. Who will the recipients of grants be?

Dr. RIPLEY. I have a list of people which I will be glad to supply.

Senator BIBLE. Without objection they will be inserted in the records.

(The information follows:)

The following is a listing of the grants issued to date from foundation funds. Since many of these grants enabled the Smithsonian to take advantage of the presence of a student or scientist in an important geographical area for research, it is not possible to provide a listing of future grants. This listing is illustrative of the projects that might be undertaken in the future.

<u>GRANTEE:</u>	<u>NATURE OF RESEARCH:</u>	<u>AMOUNT:</u>
Aiyappan, A.	A Monographic Study of the Paniyas of Wynad, Kerala State, India.	\$ 880
de Beauclair, Inez	A Collection of Material on the Folklore and Religion Among the Pazeh and Karivan Plains Tribes on Botal Tobago.	\$ 600
Blasi, Oldemar	Salvage Archeology of Old Spanish and Jesuit Communities that contained a Large Indian Population in Southern Brazil.	\$ 650
Brown, Jean E.	Complete Collection of Kenya Tribal Material plus Information on Technological Processes- Leading to a Complete Ethnography.	\$1,150
Bruce, Robert D.	Study of the Lacandon (Maya) Indians of Chiapas, Mexico: Their Drawings and Paintings.	\$1,000
Clark, David	A Study of Kibera, A Nubian Community in Nairobi, Kenya.	\$ 450
Gasché, Jorg and Mirielle Guyot	A Contribution to the Ethnography of the Putumayo and Caquertá Area of the North-west Amazon.	\$1,000
Jellicoe, Marguerite R.	The Cosmology and Religious Ideas of the Rimi (Nyaturu) of Singida District, Tanzania, as Expressed in Myth, Ritual, and Symbolism.	\$1,000
Kennedy, Raymond F.	A Study of the Traditional Music of the Native People of Ponape, Eastern Caroline Islands.	\$ 150
Kurtz, Ronald J.	A Salvage Ethnographic Survey of the Northwest Half of Liberia.	\$2,000
Kurtz, Ronald J.	A Salvage Ethnographic Survey of the Southeast Part of Liberia.	\$ 250
Laraia, Roque de Barros	Study of the Social Organization of the Urubú- Kaapor Indians (State of Maranhao, Brazil).	\$1,000
Lee, Duhyun	Study of Korean Material Culture (emphasizing farm implements) in the South Korean Village of Sam Jong Dong.	\$1,000

<u>INTEE:</u>	<u>NATURE OF RESEARCH:</u>	<u>AMOUNT:</u>
Lehmann, Dorothea Agnes	A Research Survey of the Languages and Dialects of the Kafue Basin of Zambia.	\$1,000
Lizarralde, Roberto	An Ethnographic Study of the Barí Indians (Motilone) in Venezuela.	\$ 500
Löffler, Lorenz G.	The Completion of An English-Bawm, Bawm-English Dictionary (Tibeto-Burman Language Family).	\$900
Mahapatra, L.K.	Hindu Princes and Caste Dynamics in Orissa, India.	\$1,000
Mendizabal, Emilio	A Study of the Cultural Complex of Coca (a plant used as a stimulant) in Peru.	\$1,000
Morgan, Joli	Production of an 8 mm Film of the Way of Life in the Eskimo Village of Kasigluk.	\$300
Patnaik, Nityananda	The Changing Sacred Complex in Orissa: A Study of the Cult of Jagannath and Its Temple.	\$ 800
Reichel-Dolmatoff, Gerardo	An Ethnology of the Desana Indians of the Vaupes Area of Colombia (N. Amazon).	\$ 720
Reichel-Dolmatoff, Gerardo	Research on the Desana Indians of Colombia (N. Amazon).	\$1,200
dos Santos, Silvio Coelho	A Study of the Indian Groups, Xokleng and Kaingang, in the State of Santa Catarina, Brazil.	\$2,000 for 2 years.
Sartono, S.	Pleistocene Man in Indonesia: Caretaker Surveillance of the Sangiran Site.	\$ 600
da Silva, Pedro Manuel Agostino	An Ethnography of the Material Culture of the Kamayurá of the Alto Xingú Region of Brazil.	\$1,000
Verwey, A. H. N.	A Study of the Ceremony Inaugurating a Tibetan Style Monastery in Switzerland.	\$1,000

CENTER FOR SHORT-LIVED PHENOMENA

Senator BIBLE. For the Center for Short-Lived Phenomena you propose a \$25,000 increase in the program budget and employment of one publications specialist. Last year Congress appropriated \$10,000 for this activity and you did not require any personnel on the Smithsonian Institution rolls. Which of your bureaus provided the personnel during fiscal year 1970?

Dr. RIPLEY. This was work entirely organized by Dr. Citron of the Smithsonian at the Astrophysical Observatory, just as in the case of my work this morning that I mentioned, so he develops it out of his hip pocket. Using the communications system which already exists we have developed these kinds of notification cards on all these phenomena, and by correspondence alone in his spare time he has developed a network of over 2,000 people in 122 countries.

Using the information network we have been able to get scientists advised and on the spot rapidly to do all sorts of things of the type that I mentioned this morning, finding meteorites, going to volcanic eruptions very shortly after we have gotten the word on them, investigating the appearance and disappearance of oceanic islands, and of course oil spills. It has been an extraordinarily interesting development.

I would like to show you, sir, the annual report which was put out in mimeographed form of these events which have aroused so much excitement all over the world.

Senator BIBLE. Without objection it will be incorporated by reference for the information that it contains.

In the past this has been pretty much done by private funds, is that true?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. Do you have any range of those private funds?

Mr. BRADLEY. Mr. Chairman, an amount of \$45,000 was made available in 1969 from private sources and the foreign currency funds provided \$9,000.

CONTINUED SUPPORT FROM PRIVATE SOURCES

Senator BIBLE. Private funds were available in the past. Why can't you continue to use private funds?

Dr. RIPLEY. Mr. Chairman, I am sorry to say the sources dry up, they don't seem to be nearly as interested in continuing an operation as they do or in giving it a chance to get started. I assure you, sir, that we tried.

Senator BIBLE. Well, maybe they don't think it is of that much importance. Maybe they think there are other areas where you can get more interesting information.

Dr. RIPLEY. Dr. Galler, would you like to comment?

Dr. GALLER. Mr. Chairman, it very frequently happens that private foundations will provide seed money. They are not prepared to provide support for indefinite periods of time. They will provide initiatory support in those instances where they feel that a project is worthy of becoming adequately supported on a long-term stable basis. So they will put in a little bit of money to get it started just to demonstrate its capability but rarely are they prepared to support something for more than 1 or 2 years.

Senator BIBLE. It has always worried me about these seed money projects. They just put enough seed in there to get you fellows started and then you keep coming to Uncle Sam forever and a day. We have an awful lot of problems of our own. I don't know that these seed problems are very important. I wish these people that plant these seeds would keep nourishing them until the project is completed. You get a project started and then some of them are just about where you can pick up all day long and kind of run out of dollars to go with them. I don't know how you evaluate them.

Dr. RIPLEY. Mr. Chairman, I feel that if we can get through this year we can then begin to get interagency support next year.

Senator BIBLE. You can get interagency support but that is still the Federal dollar.

Dr. RIPLEY. Yes. I wish the foundations felt a little more secure about their future at the hands of Congress than they presently feel.

Senator BIBLE. I think that is entitled to a response. Many of these foundations have had pretty good escape hatches from our tax laws and I think that was thoroughly discussed during the finance bill.

Some of them are tremendously worthwhile. Some of them like to confuse the shelter of the umbrella of the Federal Government.

Dr. RIPLEY. Well, we had been fortunate enough to get some seed money from some of the good ones.

Senator BIBLE. Still I have some doubts about all this seed. I know who picks it up after the seeds start dying out. It is Uncle Sam every time. The mere fact that you get interagency support, I don't think that is very important because that is another Federal dollar out of another agency.

USE OF THE CENTER'S INFORMATION FOR BASIC RESEARCH

Dr. RIPLEY. The Center is involved in certain kinds of basic research which is now being proved if this network of ours can help to stimulate and supply, and on that basis I think that the agencies would be glad to turn to us and help us out on this because it is research which they would be very happy to commission anyway and which they could demonstrably defend.

BICENTENNIAL OF THE AMERICAN REVOLUTION

Senator BIBLE. Now on your American Revolution Bicentennial, you propose a budget of \$400,000 and five employees. You have already detailed that pretty well in your opening statement. I know that in fiscal year 1970, \$50,000 was provided in the Museum of History and Technology as was one position for work on the American Revolution Bicentennial.

What did you accomplish with the fiscal year 1970 money?

If you have a factual statement what it is, can it be supplied for the record.

Dr. RIPLEY. We do have such a factual statement, Mr. Chairman. I would be very glad to supply it for the record, if I may.

(The information follows:)

**Activity, Personnel, and Funding
Fiscal Year 1970**

<u>Unit and Activity</u>	<u>Funding</u>
National Museum of History and Technology	
--Research and scholarship on topics pertaining to the period of the American Revolution, e.g., the production of a handbook on living historical farms	\$75,000 ^a
--Acquisition of significant objects; e.g., an Admiralty ship model of the mid-18th century (one of two in existence)	30,000
--Space and exhibits planning; e.g., "Roots of California Culture," and other exhibits	55,000 ^b
	<u>\$160,000</u>
Office of Exhibits	
--Design and production of pertinent exhibits; e.g., Negro Patriot, Hall of Flags, Hall of Historic Americans, Alexandria Artifacts	\$40,000 ^c
Academic Programs	
--Research opportunities at the graduate level in American Studies, including History of American Seacoast Fortification; History of Muzzle-loading Naval Ordnance; Transmission of Technology from England to the United States in the Textile Industry	\$15,000 ^d
National Portrait Gallery	
--Acquisition of pertinent portraits; e.g., Portrait of Horatio Gates, Bust of Ben Franklin	\$23,000
--Work on the <u>Catalog of American Portraits</u>	<u>e</u>
	<u>\$23,000</u>
National Collection of Fine Arts	
--Exhibit on American Printing Making, First 150 Years ..	<u>f</u>
	Grand Total
	\$238,000

a Six or seven man years of staff activity.

b Includes funds for consultants, design, travel.

c Contractual services, supplies and materials, equipment.

d Fellowships and related expenses.

e Not possible to estimate costs associated with portraits of American Revolution personages.

f Being circulated by the Museum of Graphic Arts of New York.

The above activities represent laying some of the groundwork for the Smithsonian Institution's involvement in the Bicentennial Celebration. Some basic research and data-gathering projects are underway, such as the Catalog of American Portraits. Where funds or our borrowing abilities have permitted, the Institution has attempted to round-out its holdings of important objects of the Revolutionary War period. Several small, but important, exhibits have been held on certain of the events leading up to the revolution. Our present resources do not permit the kind of participation expected of the Institution. We are unable to implement a total Institutional program. Much of our costs to date have reflected staff involvement. We lack the program funds for supplies, materials, equipment, services, and printing to do an adequate job.

It is only since last July that the Smithsonian has had the benefit to our planning of an active Bicentennial Commission, both funded and staffed. Special appropriation is essential if the Institution is to perform well and meet the rapidly closing deadline--now there are but five or six years left until the focal year 1976.

Our purpose is to apply all the disciplines represented within the Smithsonian to a coordinated program of public service, education, research, and scholarship. These various activities will be focused here in Washington, but with potential for the rest of the country. We plan to fabricate exhibits which, after they have been seen in Washington (and in some cases, prior thereto), will be made available for showing at museums, universities, and public buildings throughout the United States.

BICENTENNIAL ACTIVITIES AND FUNDING

Senator BIBLE. How much has been provided in Federal appropriations to the Smithsonian Institution in fiscal year 1970 for activities concerned directly with the American Revolution Bicentennial? Please provide for the record the information by activity, by personnel and by dollars. That may be the very thing that you are planning on introducing for the record now.

Dr. RIPLEY. We will do that.

Senator BIBLE. Are there any other funds in the fiscal year 1971 budget besides those requested here for the American Revolution Bicentennial use?

Dr. RIPLEY. No, sir.

BICENTENNIAL ACTIVITIES THAT HAVE BEEN HELD

Senator BIBLE. On page B-39 you show a table of projects relating to the Bicentennial which have been carried on through fiscal year 1970. Are these recent projects or have they been going on for a number of years.

Dr. RIPLEY. These are some of the projects which I referred to this morning, Mr. Chairman, which we have been developing largely through the Museum of History and Technology, that building which I referred to as having had its 30 millionth visitor 2 weeks ago. The first exhibition on George Mason and the Virginia Bill of Rights was in 1966. The 200th Anniversary of the Stamp Act and the Townshend Acts were memorialized with additional exhibitions.

The Silhouettes of Charles Willson Peale and an exhibit on American printmaking were shown in the following year at the National Collection of Fine Arts, as I recall.

Am I right? Yes, I think that was at the National Collection of Fine Arts.

Of course there have been the annual folk festivals on the Mall of which we have now had three, each one enormously successful as far as visitation and popular enthusiasm was concerned. We have had some performances of American artists on the Mall, in the tent theater last summer. We also had an exhibit, "Music Making American Style," as we called it, which had to do with the history of American music from colonial times down to the late 19th century and folk music developments.

Similarly, we have been developing programs of research at the graduate level in American studies, American history, both military and naval and in civil history and this program has been continuing with local universities for the past 6 years. In addition, we have had various study programs in American history of art and similar history, the history of iconography, of American personages and historical peoples at the National Portrait Gallery, the National Collection of Fine Arts, and in connection with our American Indian studies at the Center for the Study of Man.

FUTURE FUNDING FOR BICENTENNIAL ACTIVITY

Senator BIBLE. You have indicated that this activity in connection with the American Revolution Bicentennial will increase gradually

through fiscal year 1977 and you provide a table on page 40 showing the probable increases.

Does this indicate that after fiscal year 1977 the American Revolution Bicentennial budget can be eliminated?

Dr. RIPLEY. As I testified last year, I believe Mr. Chairman, we believe this is absolutely the case. The personnel increases that we are talking about, phased over the observance of the Bicentennial, terminate by 1978.

Senator BIBLE. Would you transfer that personnel to some other duty within the Smithsonian?

Dr. RIPLEY. I would be happy to state that I would assume that we would not do that, sir.

LAND ACQUISITION AT THE BAY CENTER

Senator BIBLE. Again you refer to the acquisition of the tract of land on Chesapeake Bay in connection with the Chesapeake Bay Center for Environmental Sciences. What is the status of this activity?

Dr. RIPLEY. At the present time we have acquired a total acreage of approximately 1,000 acres. We are negotiating for 380 acres and we have an option to purchase another 133 acres as the result of the death of Miss Colhoun.

We anticipate that the total property will amount to about 2,000 acres when the land acquisition is completed. We have so far received from eight foundations close to a million dollars, \$990,000 in total, and we are continuing to solicit funds for the remaining acres that I just mentioned.

Senator BIBLE. It will be totally acquired, then, by private donation?

Dr. RIPLEY. This is our intention.

Senator BIBLE. Very well.

ACADEMIC PROGRAMS

Senator BIBLE. You have programed a \$75,000 increase for academic programs. Why do you need this additional money?

Dr. RIPLEY. I respectfully submit that investments in our academic programs merit your approval and the increase of \$75,000 we have requested. The Institution serves as an auxiliary to education at all levels. I hope that members of the committee will be aware that we do our utmost to realize important benefits for young people from the facilities and programs committed to our care. We constantly strive for higher quality and more effective returns for students visiting the Institution directly and also for schools and colleges in the subject areas of our interest. A number of excellent proposals have been made to us by students who would have benefited greatly from support, but we have had to refuse because the present level of funding is inadequate. We can provide about 50 stipends from our present appropriation. I recommend that this level be increased steadily to a level more nearly in keeping with the range of basic disciplines to be served (nine disciplines; 450 professional staff members) and the strong interest which the university community continues to show (200 completed applications received during fiscal year 1970 for the coming year).

Our academic programs reinforce the Institution's efforts in research by training students in our unique and specialized fields of inquiry. Thus they complement and do not duplicate the efforts of universities. It is clear that these investigations are very valuable in their own right and represent an extraordinary range of effort for what is really a small investment relative to the cost of our facilities and staff research.

SCHOOL TOUR PROGRAM

Senator BIBLE. Under the Academic Program you develop tour patterns. Of the \$75,000 increase \$15,000 and two positions are for elementary and secondary education.

Dr. RIPLEY. Yes, sir.

Senator BIBLE. What kind of tour pattern would you develop?

Dr. RIPLEY. Well, the development of this program, using docents, that is volunteer instructors mostly, at the level up to the 10th grade, has been continuing in the Museum for some years, and we would like very much to have a little bit more of the professional input; that is, people that we could officially supervise and pay.

We are now serving somewhat over 100,000 children and 3,000 tourists a year which is an extraordinary number of people to be handled by largely a volunteer docent staff.

This means that in the summer and when the volunteers want to have vacations we are very pressed to fit in all these classes. We feel that we need two positions to improve our capacity to serve in those museum areas where we are not now offering tours. I can cite some of them, and perhaps you would like to hear about them.

Senator BIBLE. You can supply them for the record.

Dr. RIPLEY. I would be glad to supply them for the record.

(The information follows:)

Additional Services Provided by Two Additional Positions

In the National Museum of History and Technology our present school tour offerings are 18 per day, serving 2,700 students per week, but only in Civil History. This effort requires the services of one staff associate and ten volunteer docents per day.

There are extensive and unused exhibit areas in the history of science and technology. We are trying to develop a tour about the Industrial Revolution, a topic which is of crucial importance to the citizens of tomorrow. We might also offer:

Energy, to include exhibits on electricity and nuclear energy;

How Science Grew, the history of man's achievements in health and medical science, chemistry, pharmacy, and physics and astronomy;

Man and Manufacturing, to treat tools, light machinery and heavy machinery;

Man and communications, graphic arts and photography.

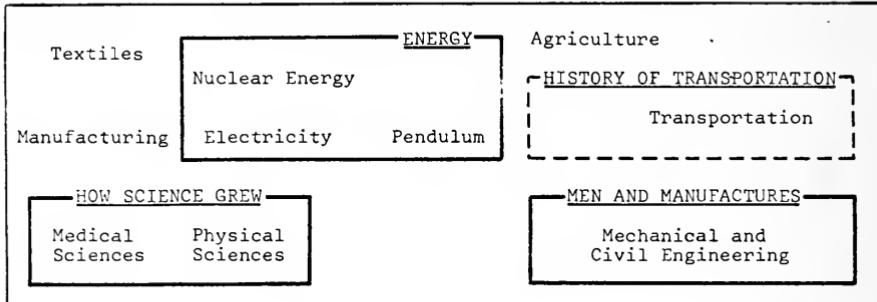
These new units provide learning opportunities beyond current offerings in the schools and also increase the museum's weekly student capacity by 14 tours per day which would accommodate an average of 2,100 additional students per week.

If this potential is to be realized, the Division of Elementary and Secondary Education will require one additional staff associate, knowledgeable in the history of science and technology, to organize themes, prepare docent and teacher guidance materials, and train the volunteer docents who will give the school tours. The following diagram shows areas not now serving education which we hope to bring unto use in this way.

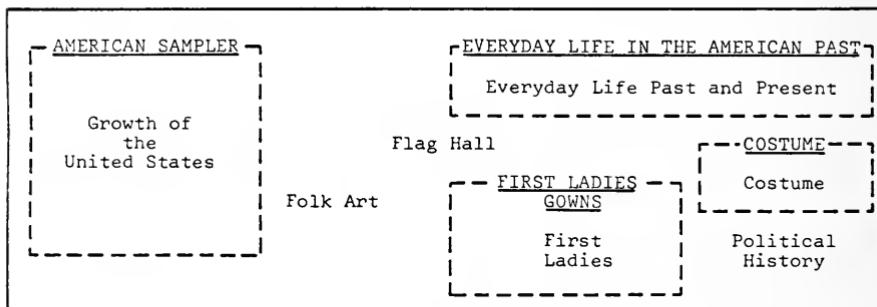
The Institution also strives to prepare educational materials, based on its collections and exhibits for the nation's schools. This effort could be significantly improved if materials could be tested among visiting school children in our exhibit halls. We propose to employ an audio-visual technician to install experimental sequences of slides and tape recorded commentary in halls used by school tours. Such a program of testing would substantially improve the flow of material from the Smithsonian to the schools.

NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

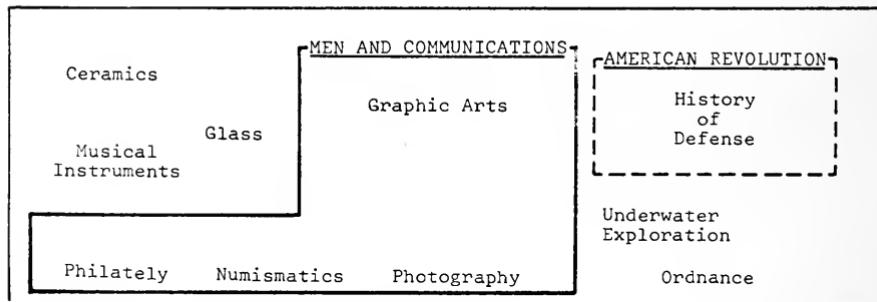
Existing School Tours Proposed School Tours
 First Floor (-----) (_____)



Second Floor



Third Floor



OFFICE OF THE TREASURER

Senator BIBLE. The Treasurer asks for an additional \$60,000 and two more positions in fiscal year 1971. That would give him a total of 33 personnel.

Why the increase?

Dr. RIPLEY. Well, sir, we find that due to a rising workload we need an additional clerk to provide data directly to our computer and a clerk-typist for the Office of the Treasurer. At the present time he has in his office only a secretary. This clerk would also serve the Internal Audit Office.

We require additional funds for reimbursement to the workmen's compensation fund, for higher mail costs, and for additional supplies, various services, and rental of a remote terminal device for the fiscal clerk.

DIVISION OF PERFORMING ARTS

Senator BIBLE. Last year the Congress provided a \$132,000 program for the Division of Performing Arts. The budget presentation this year indicates you have available \$160,000 exclusive of the proposed pay increases.

What is the source of the additional \$28,000?

This is a companion question of the one I asked a few moments ago. From what source did you obtain the additional \$28,000?

Mr. BRADLEY. Mr. Chairman, the increase in this allotment reflects unanticipated costs in other objects of expense in order to present the various performing arts programs, especially in the College Drama Festival and the Folklife Festival. Various kinds of utility and other services and fabricating activity that are usually provided by the Buildings Management Department for the other programs are rather unusual and special in the case of the Division of Performing Arts, where there is lighting, stage erection, and sound amplification systems. We found it more effective and businesslike to make the funds for those particular services available to the Performing Arts Division for its administration and that brings the money into this account that we have shown here.

Senator BIBLE. But where did you take it from?

Mr. BRADLEY. Buildings Management.

AMERICAN FOLKLINE AND AMERICAN COLLEGE THEATER FESTIVALS

Senator BIBLE. You have a \$50,000 increase proposed this year, more than half of which will be for designing and producing the American Folklife and American College Theater Festivals. Each of these was produced in fiscal year 1970 within your fiscal year 1970 base which is still available; so why do you need \$27,000 more in fiscal year 1971 to accomplish the same type of work?

Dr. RIPLEY. This will extend over into fiscal year 1971 into the actual budget period. This is my impression, Mr. Chairman.

Mr. BRADLEY. Yes.

Senator BIBLE. Why the increase? Why do you need more in 1971 than you do in 1970?

Dr. RIPLEY. Do you have anything on that, Mr. Warner?

May I ask Mr. Warner to speak to that?

Senator BIBLE. Do you understand the question?

Mr. WARNER. Yes, I do, Mr. Chairman.

Essentially the planning for the next Folklife Festival is at a higher level, a greater level. We anticipate some 200 craftsmen and performers from various States, so it is costing more. This year for the first time I think the increase reflects the fact that we are asking you, as we never have before, for program expenses for the American Folklife Festival. Heretofore it has just been for personnel in the Performing Arts Division, and I think there is an analogy with what Dr. Ripley mentioned about Anacostia. We try to get outside foundation support for the Festival. This year we have the American Dairy Association, we have the State of Arkansas with a \$50,000 grant, and they are interested in helping with special parts of the Festival. Arkansas will get a special section or pavilion this year. But when you talk of general costs they say again, "You are such a success, you have the best folk festival in the United States, why doesn't the Smithsonian assume a greater portion of the operating costs of it?"

We find it difficult to get as much outside support as we would like, so we come to you. The basis of the increase this year is that we are asking for relatively modest amounts for direct program expenses of the Folklife and College Drama Festivals as opposed to just the personnel costs of previous years.

Senator BIBLE. Thank you.

How much private funding has been received during fiscal year 1970 for the Division of Performing Arts? You testified that in fiscal year 1971, you don't think they are going to help us much. What are the dollar amounts you received and will receive in the current fiscal year?

Dr. RIPLEY. \$60,000 in 1970.

Am I right, Mr. Warner?

That is the State of Arkansas and the American Dairy Association. That is in this year up to July 1.

Senator BIBLE. How much do you anticipate in 1971?

Mr. WARNER. I could not give you an accurate figure. We try to get new sponsors but presently—

Senator BIBLE. From what you say it sounds as if you won't receive as much in 1971 as you did in 1970. Is that a correct statement?

Mr. WARNER. It is possible, sir, yes.

HEALTH UNITS

Senator BIBLE. All right. This year you have established a separate account for "Health units," and ask an increase of \$10,000 over the amount available for the two small units existing now. Do the appropriation requests for the Museum of Natural History and the Museum of History and Technology where the two small units are now located reflect a reduction to account for the financing of these units under the new heading.

Mr. BRADLEY. Mr. Chairman, the present emergency units are funded out of the Personnel Division, though they are located physically in the buildings that you speak of.

Senator BIBLE. What are you going to establish now, a separate account as I understand, for health units?

Mr. BRADLEY. Yes. That would have to be taken from the Personnel Division and moved in with the health units.

Senator BIBLE. That would mean a reduction in that other account?

Mr. BRADLEY. Yes, sir.

Senator BIBLE. Was this just a bookkeeping transaction?

Mr. BRADLEY. Sir, to answer your question directly, yes, although the Personnel Division feels that they have a better chance on Capitol Hill if they don't have to carry the three nurses for the health unit. We don't like this because this adds to our 40 line items still another line item to talk to you about but we bowed to the request of the Personnel Director.

Senator BIBLE. Then personnel will be down by that amount and the health units will be up by that amount.

Mr. BRADLEY. Yes, sir.

SMITHSONIAN INSTITUTION LIBRARIES

Senator BIBLE. Supply for the record your justification for the increase in eight positions for the Smithsonian Institution Libraries. I think you asked for an increase of \$150,000. Justify it for the record.

Mr. BRADLEY. Yes, sir.

(The information follows:)

Importance of Adequate Services to Research

The Smithsonian Institution's library program has the following basic purposes: to have at hand carefully selected documentary materials containing the best and most pertinent data and research results from the fine research done elsewhere that has a direct bearing on our own research and educational programs, and to arrange and index the information in ways that make it readily accessible. It is logical and prudent to have an information capability such as this as an adjunct to our research effort. In this manner, we speed up our own research activity and make it more efficient by avoiding costly and unnecessary duplication of research.

The Smithsonian Institution Libraries do not expect to be entirely self-sufficient. Whenever the kind of information we require, or the nature of our use of the materials in which it is transmitted, permits, we borrow books from other libraries, and ask other information services and reference libraries to help us gain access to information. We, in turn, offer the same services to other libraries.

Although the Smithsonian will continue to use the resources of other libraries through interlibrary loans and other ways, the availability of adequate in-house library materials and reference services is essential to the effective performance of the Institution's curation, exhibition, and research functions. We now find with increasing frequency that materials we want in other libraries are already in use and thus unavailable, or in such great demand that they cannot be used by our researchers for as long as they need them. Competition among libraries for too few copies of books in great demand impedes efficient research. In other words, too frequently, it is more costly to buy too few books than to provide a modest amount of necessary duplication of titles. In a number of such areas, the Institution, looked to by others as the principal, if not the only, source of books and information. This relieves other Federal libraries of the responsibility for developing information capabilities in topics that are of relatively limited, though perhaps momentarily vital, concern to them.

The request for fiscal year 1971 is meant to partially correct several deficiencies. An increase in purchase funds of \$52,000 is needed to permit purchasing only an average of three books and four journals a year for each professional employee. Only about \$50,000 are now available. An additional \$15,000 are needed for binding to preserve valuable books. (\$15,000 are now available, but \$50,000 a year are needed). A manager for the very important exchange program and three cataloger-index technicians are required (\$39,000). Two additional technicians (\$10,000) are required to cope with a steadily rising volume of reference questions—some 70,000 questions were posed to the library by staff and outsiders in 1969. An additional \$15,000 are needed to pay for computer services to streamline the Libraries' operations. And lastly, a librarian and a technician (\$19,000) are required to take care of a growing collection of rare and valuable books, many acquired by gift. This is a total requested increase of \$150,000.

SMITHSONIAN PUBLICATIONS

Senator BIBLE. Which of your publications are charge items rather than items of free distribution?

Dr. RIPLEY. We would be glad to supply that for the record, Mr. Chairman.

Senator BIBLE. Very well.

(The information follows:)

FREE DISTRIBUTION AND CHARGE PUBLICATIONS

The majority of Smithsonian publications are produced with appropriated funds, representing research on the Smithsonian collections and related areas in eight active series in the fields of natural science, astrophysics, anthropology, history, and technology. Also produced are exhibit and collection catalogues. These publications are printed at the Government Printing Office. They are distributed free of charge by the Institution as a public service in the "diffusion of knowledge" extending the information inherent in our collections and exhibits to a wider audience including qualified scholars, libraries, other museums, and universities in this country and abroad. Additionally, the Superintendent of Documents independently produces quantities of these publications for sale as public documents, the income from which is received by the Superintendent of Documents.

A lesser number of popular pamphlets and books are produced by the Press, subject to the limited availability of private funds, for sale to museum visitors and the public at large.

NUMBER OF MANUSCRIPTS SUBMITTED FOR PRINTING

Senator BIBLE. Provide for the record the number of manuscripts submitted for printing in 1969 and the number which you estimate will be ready for printing in the current fiscal year, and in fiscal year 1971.

Dr. RIPLEY. We would be very happy to supply that for the record, Mr. Chairman.

(The information follows:)

During the past twelve months, 76 research reports and exhibit catalog manuscripts have been submitted to the Smithsonian Institution Press for publication in 1970 or 1971. In total, they comprise 14,374 pages of manuscripts (not inclusive of many scientific, historic, and art illustrations). In addition, currently there are on hand three major contributions to scholarship of several thousand pages which, because of their large bulk, cannot be funded from the existing budget.

Exhibit catalogs constitute the current most rapid growing burden on publication resources. The number of Smithsonian public museums and art galleries has increased greatly in recent years, and they have all doubled efforts to communicate knowledge to the public through their exhibit and reference collection programs. Consequently, there has been an increase in the number of exhibit and collection catalogs in fiscal year 1970, and still more are expected in fiscal year 1971 and in future years with the development of the Joseph H. Hirshhorn Gallery and the Renwick Gallery. The cost burden of these publications is compounded by the comparatively high cost per page of producing quality publications designed, through the reproduction of art illustrations and/or the use of color, to attract and inform readers and to serve accurately as continuing reference works to exhibits and collections.

BUILDINGS MANAGEMENT DEPARTMENT

Senator BIBLE. Last year Congress appropriated \$8,444,000 for the Buildings Management Department. Your fiscal year 1971 presentation indicates you have only \$8,098,000 exclusive pay costs which you expect to be appropriated later. This is a difference of \$346,000. What is the disposition of that sum of money?

Dr. RIPLEY. Mr. Bradley, can you answer?

Mr. BRADLEY. Mr. Chairman, funds for rent and certain utilities are being accounted for in this budget now before you at the Bureau level. We have rent money at the Astrophysical Observatory in Cambridge, Mass., and again down in the Canal Zone for the Smithsonian Tropical Research Institute. The rent money for those two off-Mall units is being carried in the accounts. So the rent money accounts for a part of that, although it does not account for it all.

In addition, funds were made available for the needs of the Division of Performing Arts as I mentioned before, and of the Anacostia Neighborhood Museum. In addition, in 1970 a portion of the Buildings Management Department funds in other object classes was made available to their Hirshhorn Museum as a part of the reprogramming effort that was submitted to the Committee, I am pleased to say you approved that.

WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS

Senator BIBLE. There is no budget this year for the Woodrow Wilson International Center for Scholars for which \$100,000 was appropriated to the Smithsonian Institution for the current fiscal year. Is that correct, for fiscal year 1970?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. What appropriation was requested for this activity for fiscal year 1971?

Dr. RIPLEY. There is nothing requested in our budget, Mr. Chairman.

Senator BIBLE. That was not my question. My question was how much did you request.

Dr. RIPLEY. A request for \$940,000 was submitted to the Bureau of the Budget.

Senator BIBLE. \$940,000. That was lost where, in the Bureau of the Budget?

Dr. RIPLEY. That disappeared somewhere, we do not know where. I felt it was like one of those out of the nowhere into the here, and then out of the here into the nowhere. We were not told why and where it disappeared.

Senator BIBLE. You submitted it within your Smithsonian Budget?

Dr. RIPLEY. That is right. We submitted a request to the President for \$934,000.

Mr. Chairman, I made a mistake. It was \$934,000. Of this total, \$494,000 was sought to meet one-half of the costs of the 40 scholar post-doctoral program with the balance of the funding to be sought from private sources.

Senator BIBLE. Now did you appeal this denial?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. To whom?

Dr. RIPLEY. To the Executive Office.

Senator BIBLE. To the Executive Office of the President?

Dr. RIPLEY. Yes.

Senator BIBLE. And the appeal was—

Dr. RIPLEY. And I also appealed to the Director of the Bureau of the Budget.

Senator BIBLE. You made two appeals?

Dr. RIPLEY.Appealed on two accounts.

Senator BIBLE. Were you denied in both places?

Dr. RIPLEY. We simply had the word back informally that funds could not be provided in the President's budget allowance to the Smithsonian.

Senator BIBLE. Does that infer that they could be provided in some other budget? The way you word your answer—

Dr. RIPLEY. Well, I am afraid, sir, that whatever I would infer out of it would not be based on firm information. I have no information on it myself at this time.

CONSTRUCTION AND IMPROVEMENTS—NATIONAL ZOOLOGICAL PARK

Senator BIBLE. Very well. Now we will turn to construction items. First the National Zoological Park is asking for \$200,000. The justification statement will be made a part of the record.

(The justification follows:)

CONSTRUCTION AND IMPROVEMENTS, NATIONAL ZOOLOGICAL PARK

1969 appropriation	\$300,000
1970 appropriation	600,000
1971 estimate	200,000

Recognizing that the National Zoological Park had not had any major improvements since the mid 1930's and that it was in a disgracefully deteriorated condition, the Congress in 1963 approved a master plan for improvement of its physical facilities. The original schedule called for a ten year program and funds were appropriated for each of the next five consecutive years in support of the master plan. In fiscal year 1968, construction funds were not appropriated to maintain the momentum of the program and the work was scaled down to those critical improvements required to extend the useful life of facilities not yet replaced and to minor projects which contributed to the elimination of water pollution of Rock Creek and air pollution. This holding action has continued through fiscal year 1970. Funds appropriated this year will be used for completion of the heating plant conversion and for such essential safety and preventive maintenance projects as replacing deteriorated wooden handrails in and outside of the buildings, installing fire alarm systems, repairing the Elephant House roof, replacing cage doors, and installing a prototype system for manure disposal to combat air pollution.

In fiscal year 1971, the Smithsonian will again defer a request for funds to resume progress toward completion of the improvement program and will request funds only for repairs and continued maintenance to keep those buildings and exhibits, which will eventually be replaced, in usable condition. Included in the necessary projects are waterproofing buildings, painting of buildings and cages to prevent structural damage, and repair of outside cages. Funds in the amount of \$200,000 are requested for these purposes.

FREEZE ON CONSTRUCTION FUNDS

Senator BIBLE. Doctor, you might just explain briefly what you plan on doing in 1971.

Let me ask a preliminary question: Were some of your construction funds frozen in fiscal year 1970, in the current fiscal year?

Dr. RIPLEY. Yes, sir; they were.

Dr. REED. Yes, they were.

Dr. RIPLEY. Dr. Reed might explain about that.

Senator BIBLE. How much was frozen, Doctor, and why? That can be supplied for the record.

(The information follows:)

CONSTRUCTION REDUCTION PLAN

On September 12, 1969, the Bureau of the Budget directed that new contracts for construction be reduced by 75 percent from the level planned for fiscal year 1971, effective immediately. Although major improvements were included under the definition "new construction," the instruction excluded repairs, equipment, and design from the reduction plan. A further special exception was granted to the Smithsonian Institution by the Bureau of the Budget for the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden.

The Smithsonian was required to defer \$2,354,000 of construction work, including \$1,869,000 at the National Zoological Park and \$450,000 in the Restoration and Renovation account. The deferred work at the National Zoological Park included major repairs and the building of service facilities, such as warehouse, greenhouse, maintenance shops, and related facilities. The deferral in the Restoration and Renovation account included small amounts for the renovation of the Smithsonian Institution building and the Fine Arts and Portrait Gallery building, and more extensive work planned for the preparation of research facilities for the Radiation Biology Laboratory, including a replacement for the greenhouse that was in use on the Mall, constant temperature chambers, and plant growing rooms, and other work.

It is assumed that these deferred funds will be available for obligation on July 1, 1970, for this planned work, unless released prior to that date by the Bureau of the Budget.

DEFERRAL OF \$2,354,000 OF CONSTRUCTION WORK

Senator BIBLE. Just give me the total figure.

Dr. REED. The total figure for what was frozen was \$2,354,000. This is the amount that was frozen for this year. We planned to build with that service facilities.

Senator BIBLE. You can supply that for the record.

All of that was frozen? Was the total amount frozen?

Dr. REED. Yes, sir.

Senator BIBLE. Did I understand you or Dr. Ripley to say earlier that you hoped to have that released by July 1 or shortly after July 1?

Dr. REED. Yes, sir; it is our hope.

REPAIR OF ZOO FACILITIES

Senator BIBLE. Now what will you do with the \$200,000 that you are asking for fiscal year 1971?

Dr. REED. This is for the repair of facilities at the National Zoological Park, which have become so deteriorated that we feel it is a matter of safety to the visitors and also necessary even to maintain the building. This is for repair of roofs and for painting. We have a list of 141 projects.

Senator BIBLE. That does not need to be furnished for the record. That seems to be a reasonable amount and probably an inadequate amount to do the repair that you need there.

Dr. REED. I would agree with you, sir, that we could use more.

Senator BIBLE. Very well.

I don't think you need to supply that for the record.

RESTORATION AND RENOVATION OF BUILDINGS

Now for the item of Restoration and Renovation of Buildings, you ask for \$1,130,000, an increase of \$605,000 over the amount provided during the current year.

The justification for the request will be included in the record.
(The justification follows:)

RESTORATION AND RENOVATION OF BUILDINGS

1969 Appropriation.....	\$400,000
1970 Appropriation.....	\$525,000
1971 Estimate.....	\$1,130,000

An appropriation of \$1,130,000 is requested for the following projects:

Renwick Gallery of Art	\$300,000
Arts and Industries Building.....	500,000
Smithsonian Tropical Research Institute....	25,000
Fumigation Facility	75,000
Library Modifications	50,000
Museum Support Facility	80,000
Feasibility Studies	<u>100,000</u>
Total estimate for 1971.....\$1,130,000	
Less amount appropriated in fiscal year 1970	<u>525,000</u>
Increase in fiscal year 1971	\$605,000

Renwick Gallery of Art

An appropriation of \$300,000 is requested to complete a program of restoration and improvement of the old Court of Claims building on Lafayette Square, now known as the Renwick Gallery of Art.

Completion of restoration work on the Renwick Gallery is of the highest priority, not only to protect the \$2,070,000 thus far appropriated by the Congress and invested in construction and restoration work, but also to make this historically important and centrally located building available for use and enjoyment by the public.

With funds previously appropriated, work is being completed now for central rooms on each floor, thereby assuring that a portion of the building can be opened to the public by the fall of 1970. An additional appropriation of \$300,000 will permit completion of flooring, plastering, painting, lighting, and millwork for the remainder of the rooms and to install necessary furnishings and exhibits.

With this appropriation the essential renovation and restoration work will be sufficiently complete to permit full use of the building. To restore the building interior to comparable elegance approaching the original design would be prohibitively expensive; work is being limited, therefore, to architectural restoration of the main building features.

The Renwick Gallery in association with the National Collection of Fine Arts will be primarily concerned with the American decorative arts and designs, broadly defined to reflect the diverse competence and collections within the Smithsonian Institution as well as important objects and collections that will be borrowed for exhibit. Because of its proximity to the White House and to centers of government and private activity, a carefully planned program of exhibits, talks, concerts, and informal lectures will be instituted to serve the interest of that area of the inner city.

Arts and Industries Building

An appropriation of \$500,000 is requested to construct second floor decks in the Arts and Industries Building to provide office and work space for the Smithsonian Institution staff.

In fiscal year 1967, the Congress appropriated \$133,000 to prepare plans and specifications for renovating the 90-year-old Arts and Industries Building, located at 9th Street and Independence Avenue. Although plans have been completed and construction can start upon receipt of an appropriation, the full funding request will be deferred until a future date, so that higher priority restoration and renovation projects elsewhere in the Institution may proceed. The total renovation cost for this building will be approximately \$3,000,000.

Included in the total project is an item amounting to \$500,000 for construction of several second floor decks in high ceiling court areas and thus put to good use space that is otherwise wasted. The additional floor space is planned for use as offices as well as for classroom and other public service purposes. Because of the urgent need for this space, this portion of the renovation project should proceed as soon as possible, and funds are requested as a priority item.

The demands for additional administrative and public service space for the Smithsonian are the natural result of substantially broadening the diversified programs of the Institution in recent years. Over twenty programs have been added by legislation, including such major museums and functions as the Museum of History and Technology, the National Portrait Gallery, the National Air and Space Museum, and the Hirshhorn Museum. All of these activities require administrative support from the personnel, fiscal, supply, buildings management, budget, and other management service units, as well as those units that more directly provide information and services to the public. With funds requested, substantial relief may be realized from the present over-crowding in administrative offices.

Smithsonian Tropical Research Institute

An appropriation of \$25,000 is requested for continuing emergency repairs to existing facilities.

In fiscal year 1970, \$25,000 were appropriated to start a program of repairs and renovation for the buildings on Barro Colorado Island and at the mainland facilities in the Panama Canal Zone. There are 15 small wood frame buildings on the Island, most of which are over 25 years old and in poor condition due to the high tropical humidity and insect infestations. A program of general improvements will cost approximately \$100,000 and would involve the replacement of flooring, wiring, roofing, screening, and some mechanical repairs and replacements. With the funds requested, many of these improvements can be made and the useful life of existing buildings extended.

Fumigation Facility

An appropriation of \$75,000 is requested to construct a fumigation facility in the Museum of Natural History Building.

Hundreds of thousands of organic specimens in the Collections, including plants, hides and skins, and articles made from leather, bone, and wood, require careful fumigation for preservation. Objects must be fumigated immediately upon receipt to eradicate live pests and then periodically to eradicate those hatched from eggs previously deposited or from new infestations.

In the past, fumigation work has been accomplished with a homemade facility in a room in the Museum of Natural History in a rather crude manner requiring hand pouring of fumigants. Modern building codes, requiring specialized facilities, ventilation, and safety features as well as improved methods for handling toxic fumigants have shown the Museum's facility to be obsolete, inadequate, and unsafe. For safety reasons, the facility has been closed and fumigation work is now accomplished by outside contracting or is being deferred.

The cost of transportation to private fumigation facilities as well as the inconvenience and danger to security of the Collections also justify this high priority request for construction of a new facility in the Museum of Natural History Building.

Funds requested will be used to construct a specially designed room, with sealable openings, safety control systems for storing and handling fumigants, and proper ventilation and exhaust systems.

Library Modifications

An appropriation of \$50,000 is requested to modify a portion of the space, in the Museum of Natural History Building, used by the Smithsonian Library.

The Library's collections now contain more than 750,000 pieces, most of which are housed in the Museum of Natural History Building, in less than 25,000 square feet of floor space. Because adequate operating space is not available nor can additional space be assigned at this time, it is necessary that maximum use be made of all available space and that mezzanines be constructed where head room permits.

With funds requested, it will be possible to construct a mezzanine level in three adjacent rooms and to install a booklift. This is a small, but important, project which will provide some urgently needed relief to the congested conditions now existing in the library.

Museum Support Facility

An appropriation of \$80,000 is requested for preparation of plans and specifications for an off-Mall central museum storage and study facility for the Smithsonian Institution.

Rather than continue to store increasing numbers of objects from the National Collections in the buildings on the Mall, a central storage and retrieval center for classifying, preserving, restoring, studying, and storing items is required along with shops and laboratories in support of research and education activities related to the Institution's work. A specially designed facility using modern storage and retrieval methods will permit improved management of the 60,000,000 items in the National Collections as well as making the collections more accessible for study and research. The space vacated on the Mall can be used for exhibits and other public education and service purposes.

Planning studies are now in progress to select a site for the center and to phase a development program over a ten-year period. This appropriation request is for design of the first increment of a long-range program.

Feasibility Studies

An appropriation of \$100,000 is requested to prepare feasibility studies for the future building needs of the Smithsonian Institution.

Careful advanced and long-range planning are essential if the future building needs for the complex and varied programs of the Smithsonian Institution are adequately identified, studied, and documented. With funds requested, urgent work can be started on studies of storage retrieval methods and methodology for the expanding collections; methods of cataloging, inventorying, and preserving specimens; feasibility studies for physical facilities to accommodate future research needs in tropical biology, astrophysical sciences, environmental and ecological studies on land now owned by the Institution; and for new museum space to improve and expand the exhibits and educational programs for the benefit of the people of the United States.

PRIORITY OF RESTORATION AND RENOVATION PROJECTS

Senator BIBLE. You have listed seven projects for which you desire this appropriation. Would you please place in the record a listing of these projects by order of priority which you assigned to them?

Dr. RIPLEY. Yes, sir.

(The information follows:)

Renwick Gallery completion-----	\$300,000
Arts and Industries space improvement-----	500,000
Smithsonian Tropical Research Institute building repairs-----	25,000
Feasibility studies of essential projects-----	100,000
Library space improvements-----	50,000
Fumigation facility-----	75,000
Museum support facility-----	80,000
 Total -----	 1,130,000

RENWICK GALLERY

Senator BIBLE. \$300,000 is to be applied to the Renwick Gallery of Art. How much would remain to be done after fiscal year 1971, assuming the \$300,000 was approved?

I understand you have completed your job.

Dr. RIPLEY. We believe this will suffice to complete the job of the restoration of the building.

ARTS AND INDUSTRIES BUILDING

Senator BIBLE. You ask \$500,000 to do the remodeling work in the Arts and Industries building in accordance with plans for which funds were provided in fiscal year 1967. Is the total renovation cost estimate for the building, the \$3 million, a current one or that of 1967?

Dr. RIPLEY. That is a current one.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Senator BIBLE. Another \$25,000 is asked for the Smithsonian Tropical Research Institute for continuing emergency repairs to existing facilities. Has the \$25,000 which has been appropriated last year and which was not shown as a new program start been used?

Dr. RIPLEY. Yes, sir; I believe it has.

Mr. BRADLEY. Mr. Chairman, yes, it is in the process of being used in consultation with the Corps of Engineers down there. We are trying to get it underway.

Senator BIBLE. And you are asking for another \$25,000 to continue those emergency repairs?

Mr. BRADLEY. Yes.

Senator BIBLE. I have been informed that those are badly needed and it should be done.

What is the total estimated cost of repairs which you need in Panama?

Dr. RIPLEY. We have figures that I have seen in my case on a total estimate cost of repair.

We do estimate that the total cost will be about \$100,000.

Senator BIBLE. And you believe that is going to be a 4-year level or \$25,000 a year?

Dr. RIPLEY. I would estimate that we could hang on over a 4-year level.

Senator BIBLE. Last year \$100,000 was provided for construction of a building to be used for laboratory space.

Has that building been constructed?

Mr. BRADLEY. Mr. Chairman, it has been designed and we are in the process right today of looking at the drawings and trying to scale the scope of work downward.

Senator BIBLE. \$100,000?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. And you anticipate a bid letting when?

Mr. BRADLEY. The bidding should be within a period of about 2 months from now.

Senator BIBLE. This is not a frozen item?

Mr. BRADLEY. No, sir.

Dr. RIPLEY. No, sir.

FUMIGATION FACILITY

Senator BIBLE. What is the facility for which you ask \$75,000?

Dr. RIPLEY. This is for the Natural History Building and would be used by many elements of the Departments already housed in that building. We have hundreds of thousands of organic specimens in the collection—plants, hides, and skins; also articles made from leather, bone, and wood, some of them on loan to us from other Government agencies such as the FBI. Many of these objects require very careful fumigation for preservation. They have to be fumigated almost immediately on arrival in the building to eliminate the danger of contaminant insects getting out into the building and then periodically to eradicate those hatched from eggs which might previously have been deposited or from occasional new infestation.

In the past fumigation has been done with a homemade facility in the basement in a rather crude manner, which requires hand pouring of these fumigants. Unfortunately, modern building codes requiring specialized facilities, ventilation and safety features as well as improved methods for handling toxic fumigants have shown that the facility is obsolete, inadequate and unsafe. For safety reasons the facility has been closed and fumigation work is now accomplished by outside contracting or is being deferred.

LIBRARY SPACE

Senator BIBLE. Thank you.

With respect to the \$50,000 which you propose in order to modify a portion of the space in the Museum of National History Building to be used by the Smithsonian Library, is that a one-time cost or is it the start of a new long-term program?

Dr. RIPLEY. I am happy to report that we do need \$50,000 to modify a space in the library for some of our most valuable books, many of which are currently just exposed on the shelves and not subject to appropriate humidity or other control systems. Some of these books are worth thousands of dollars and increasing in value all the time. The possibility of deterioration or even, I am sorry to say, of vandalism, remains constant and the prices are continually going up.

Senator BIBLE. Admitting that, is it a one-time cost or will it be the start of a new program?

Dr. RIPLEY. This is a one-time cost for this facility.

Senator BIBLE. Very well.

MUSEUM STORAGE AND STUDY FACILITY

You propose an appropriation of \$80,000 for preparation of plans and specifications for an off-Mall central museum storage and study facility. Where would this be placed?

Dr. RIPLEY. We have one present good option in Suitland which is adjacent to where we already have our Silver Hill facility.

Senator BIBLE. Is this in lieu of the \$130,000 requested last year for the facility you just described, the Silver Hill storage facility? Those funds were denied last year.

Mr. BRADLEY. Mr. Chairman, that was for the same purpose as the estimate now before you; yes, sir.

Senator BIBLE. Will this go in the same place?

Mr. BRADLEY. Yes, sir.

Senator BIBLE. It is the same item, it just came before us last year?

Mr. BRADLEY. Yes.

FEASIBILITY STUDIES

Senator BIBLE. What do you plan to do with the \$100,000 which you request for the feasibility studies?

Feasibility studies of what?

Dr. RIPLEY. We have additional building needs for the Institution. We have a variety of complex and varied programs of the Smithsonian which we have adequately identified. These need to be studied and documented with the funds requested so that we can start on studies of storage retrieval methods and the methodology for physically handling expanding collections, methods of cataloging, inventory, and preserving specimens. Also, we need feasibility studies of physical facilities to accommodate future research needs varying from astrophysical sciences to tropical biology to environmental and ecological studies on land now owned by the Institution. Studies are needed also of new museum space to improve and expand the educational programs and exhibits for the benefit of the people of the United States.

LAND OWNED BY THE SMITHSONIAN

Senator BIBLE. You say on land now owned by the Smithsonian. How much land does the Smithsonian own?

Dr. RIPLEY. In Washington we own what is called Smithsonian Park from 9th to 12th on the Mall and halfway across from Independence Avenue to the middle of the Mall.

We also own the land on which the Museum of Natural History stands and the original deed of land for the National Gallery of Art. All building sites of the Smithsonian are appropriated to the Institution by statute.

We have land deeded to us for the Air and Space Museum which has been authorized but is not yet under construction. We have the land of the Fine Arts and Portrait Galleries building, for the National Collection of Fine Arts and National Portrait Gallery, the original U.S. Patent Office.

Senator BIBLE. The Renwick Gallery: do you have title to that?

Dr. RIPLEY. Yes, sir; we have title to the Renwick Gallery and its site at 17th and Pennsylvania Avenue.

In Suitland we have 21 acres. That is just across the District Line and is known as the Silver Hill facility.

Senator BIBLE. That is where you plan on putting your storage facilities?

Dr. RIPLEY. That is right.

INVENTORY OF STORED COLLECTIONS

Senator BIBLE. What do you do after you store? I think you told me last year or the year before last that you had the biggest storage in the world, or something like that. You stored elephant tusks for years and years and years, and then people got disinterested in elephant tusks. How long are you going to keep storing?

Dr. RIPLEY. Well, sometimes these things are stored indefinitely, sometimes they are exchanged or loaned or given away, depending on the terms of the gift. Sometimes they come back into exhibit areas again. For the airplanes, as an example, which are being stored in Silver Hill, we have a gradual program of renovation and restoration for eventual exhibition.

Senator BIBLE. You said the inventory of your storage items.

If I were to ask you for an inventory of storage, could you give me chapter and verse on them?

Dr. RIPLEY. Yes, sir, although off the record, I would hate to supply it for the record.

Senator BIBLE. I am not going to ask you for it.

How many items are there?

Dr. RIPLEY. We estimate close to 60 million items.

Senator BIBLE. Sixty million items. Don't supply it for the record. You keep those inventoried?

Dr. RIPLEY. This is the kind of inventory in certain areas such as fish, insects, animals, and so forth, which we continually try to improve for environmental studies purposes. In other areas we have some antiquated inventory system which we would like very much to be able to improve. We are continually trying to get ideas and compare notes with other people in the same archival library or museum business as ourselves for this kind of purpose.

ADDITIONAL PROPERTY HOLDINGS

Did you want further additions to our acreage?

Senator BIBLE. I wanted to come back to that because I got sidetracked with the elephant tusks.

What other holdings do you have other than the ones you described? Describe the ones here in Washington and the one at Suitland—and where else?

Dr. RIPLEY. Well, in adjacent parts of the District we also have the prospect of the Hillwood Estate which has been deeded to us by Mrs. Marjorie Merriweather Post. That is 24 acres out in the Rock Creek area.

We have of course title to the land of the National Zoological Park, which is 160 acres in Rock Creek Valley. The Chesapeake Bay Center, as

I mentioned earlier, is composed of a 1,000-acre holding. We have Belmont, a property off the parkway to Baltimore which is approximately 350 acres.

Senator BIBLE. What do you do with that?

Dr. RIPLEY. Belmont was a gift to us and we maintain it as a conference center rather like Airlie House, or one of these similar ones.

Senator BIBLE. All right. You may continue.

Dr. RIPLEY. We have additional lands in the Panama Canal Zone, essentially consisting of the Island of Barro Colorado. We have leased space in Cambridge, Mass., but I don't think we have any acreage.

What have I missed, Mr. Bradley?

Senator BIBLE. Well, if you have missed any you can amplify it for the record in these requests for insertions.

I guess we didn't mention this to you at the start of your testimony. We ask that that be furnished within 7 days because we are anxious to complete our work on the appropriations bill at an early date. I think we are going to be able to do so, so this hurries the proofing and the checking out of our hearing record and enables us to finish our work that much earlier.

FEASIBILITY STUDIES

Now one further question on these feasibility studies. You have \$100,000 for them this year. Is that very apt to be a recurring item? Another \$100,000 next year?

Dr. RIPLEY. No, sir. We have no idea that we would particularly ask for this as a recurring item with the exception that we might in the future want to have some study funds for the resolution of the problem of the National Air and Space Museum.

Senator BIBLE. I realize there might be individual feasibility studies leading to first the feasibility of the project and then of course the next stage is the preliminary planning and advance planning and construction of the building and the plea for \$10 million for the building and \$3 million for the O. & M. to run the building. So I know what these building studies lead to. I don't say it is bad but it is the finished project.

I know with your genius that you will have some project coming forward for the next several years. I am sure you lay awake nights thinking about projects; that is your duty.

Dr. RIPLEY. Fortunately, I don't.

Senator BIBLE. Oh, you don't.

Dr. RIPLEY. I can assure you, Senator, that we don't intend to come up with such a feasibility request every year. It is very much on my mind that the Congress has authorized a National Air and Space Museum and appropriated land to that purpose.

Senator BIBLE. I thought you said you are going to use part of this \$100,000 for that very purpose, feasibility study.

Dr. RIPLEY. No, that excludes that.

Senator BIBLE. All right.

Dr. RIPLEY. I am anxious to try and redesign the Air and Space Museum so that we can have a contemporary design and probably save a considerable amount of money over the original design.

Senator BIBLE. Thank you very much. As usual, you were a very effective group of witnesses. You always bring up all those exhibits which you always take back again, and which I guess is understandable.

SUBCOMMITTEE RECESS

We stand in recess now until 9:30 tomorrow morning, when we will hear the Public Land Law Review Commission, and the American Revolution Bicentennial Commission, we will see how much they overlap into the items that you testified to today.

Also the Indian Health Service will be here in a continuation of the hearing that we started on March 10.

We stand in recess until 9:30 tomorrow morning.

(Whereupon, at 3:40 p.m., Monday, March 16, the subcommittee was recessed, to reconvene at 9:30 a.m., Tuesday, March 17.)

SMITHSONIAN INSTITUTION LIBRARIES



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